BUFFALO

Buffalo Network Admin Tools for NAS (BN-ADT/NAS)

User Manual

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35012117 ver.04

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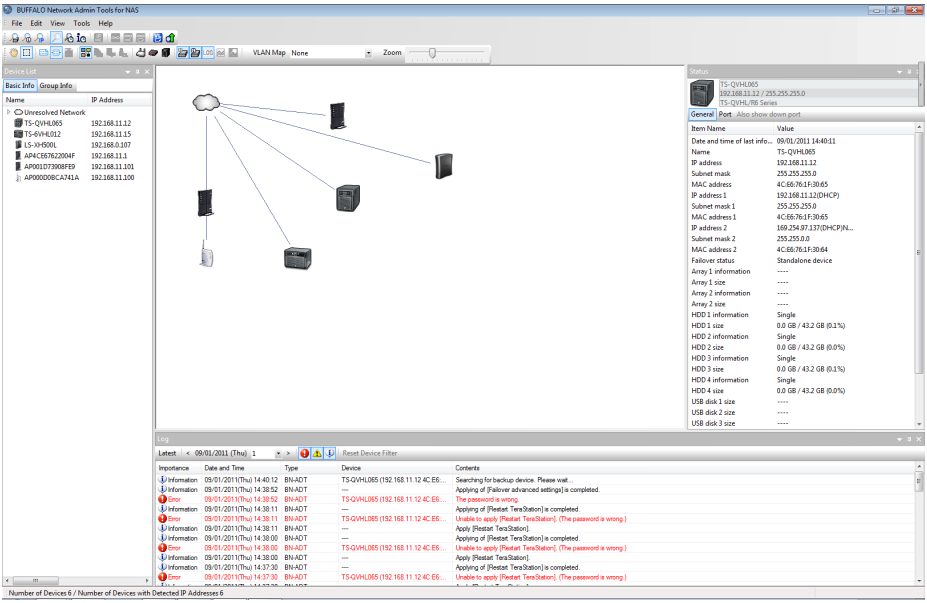
1 Product Overview

Main Features

The main features of Buffalo Network Admin Tools for NAS (BN-ADT/NAS) are shown below.

Network Map

The Network Map detects NAS devices on the network and displays them as icons.

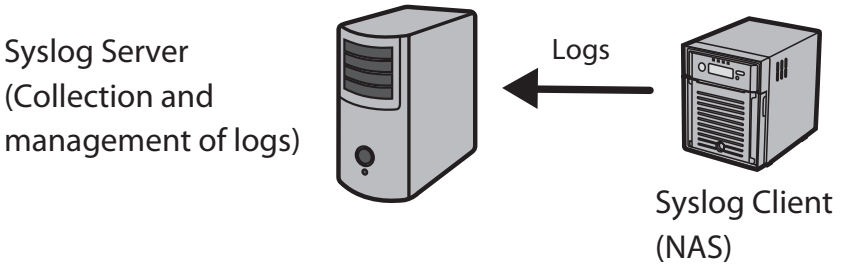

BUFFALO Network Admin Tools for NAS
File Edit View Tools Help
VLAN Map None
Zoom
Device List
Basic Info Group Info
Name IP Address
Unresolved Network
TS-QVHL065 192.168.11.12
TS-6VHL012 192.168.11.15
LS-XH500L 192.168.0.107
AP4CE676220D4F 192.168.11.1
AP001D7390BFE9 192.168.11.101
AP000D0BCA741A 192.168.11.100
Status
TS-QVHL065
192.168.11.12 / 255.255.255.0
TS-QVHL/R6 Series
General Port Also show down port
Item Name Value
Date and time of last info... 09/01/2011 14:40:11
Name TS-QVHL065
IP address 192.168.11.12
Subnet mask 255.255.255.0
MAC address 4C:E6:76:1F:30:65
IP address 1 192.168.11.12(DHCP)
Subnet mask 1 255.255.255.0
MAC address 1 4C:E6:76:1F:30:65
IP address 2 169.254.97.137(DHCP)N...
Subnet mask 2 255.255.0.0
MAC address 2 4C:E6:76:1F:30:64
Failover status Standalone device
Array 1 information ----
Array 1 size ----
Array 2 information ----
Array 2 size ----
HDD 1 information Single
HDD 1 size 0.0 GB / 43.2 GB (0.1%)
HDD 2 information Single
HDD 2 size 0.0 GB / 43.2 GB (0.0%)
HDD 3 information Single
HDD 3 size 0.0 GB / 43.2 GB (0.1%)
HDD 4 information Single
HDD 4 size 0.0 GB / 43.2 GB (0.0%)
USB disk 1 size ----
USB disk 2 size ----
USB disk 3 size ----
Log
Latest 09/01/2011 (Thu) 1
Reset Device Filter
Importance Date and Time Type Device Contents
Number of Devices 6 / Number of Devices with Detected IP Addresses 6

Management

This interface provides centralized management for Buffalo products that support BN-ADT/NAS. It also enables easy backup and restoration of settings and provides logging and pinging.

What is Syslog?

Syslog is a standard protocol for storing logs in UNIX servers and Linux servers. It enables the collection and centralized management of logs from multiple devices over a network. Generally, the logs for access points, routers, and switches are temporarily stored in the memory of the device itself. However, because the size of this memory is limited, logs are gradually deleted starting from the oldest ones. BN-ADT/NAS can be used as a Syslog server for saving device logs to a computer hard drive or other location. Because of the large size of typical computer hard drives, this enables you to save logs for extended periods of time.



Note:
Because the Syslog server is automatically started as a service, BN-ADT/NAS does not need to be running and you do not need to be logged into Windows.

Operating System Requirements

For the most up-to-date information, please visit the Buffalo Technology website (buffalotech.com).

Computer

DOS/V computer (OADG specifications)

- A computer with a Core 2 Duo or faster CPU is recommended.

OS

- Windows 8 (All editions, x86 and x64 WoW64)
- Windows 7 (All editions, x86 and x64 WoW64)
- Windows Vista (All editions, x86 and x64 WoW64)
- Windows XP SP2 and later (All editions, x86 only)
- Windows Server 2008 R2 (Standard/Enterprise, x64 WoW64)
- Windows Server 2008 (Standard/Enterprise, x86 and x64 WoW64)
- Windows Server 2003 R2 (Standard/Enterprise, x86)
- Windows Server 2003 SP1 and later (Standard/Enterprise, x86)

  Notes:
  - Visual C++ 2008 Redistributable (Runtime) x86 version must be installed. (This is installed during setup of BN-ADT/NAS.)
  - Computer administrator privileges are required.

Resolution and Number of Colors

1024×600 or higher, 16-bit color or higher

Devices

If the installated firmware in the device is a previous version that is not compatible with BN-ADT/NAS, use the procedure provided in the manual for the respective device to update the firmware before using with BN-ADT/NAS.

TeraStation Series	TS-XL/R5, TS-RXL/R5, TS-WXL/R1, TS-WXL/1D, TS-XEL/R5, TS-XHL/R6 (Firmware version 1.40 or later)
	TS-HTGL/R5, TS-RHTGL/R5 (Firmware version1.35 or later)
	WS-QL/R5 (Firmware version 1.10 or later)
	WS-WVL/R1, WS-QVL/R5, WS-6VL/R5, WS-RVL/R5, TS-WVHL/R1, TS-QVHL/R6, TS-6VHL/R6, TS-8VHL/R6, TS-RVHL/R6 (Firmware version 1.00 or later)
	TS5200D, TS5400D, TS5600D, TS5800D, TS5400R (Firmware version 1.00 or later)

2 Installation

Installation Procedure

Installation Procedure

Follow the procedure below to install BN-ADT/NAS.

1 Correct the time and date settings on your computer.

Note:
Some functions of BN-ADT/NAS may not work properly if the date and time are not set correctly.

2 Load the setup CD into your computer.

3 Double-click “Setup.exe” on the setup CD.

Note:
If the message "Microsoft Visual C++ 2008 Redistributable (x86) is not installed." is displayed, click *Yes* and follow the on-screen instructions to install.

4 BN-ADT/NAS will install on your computer.

This completes the installation of BN-ADT/NAS.

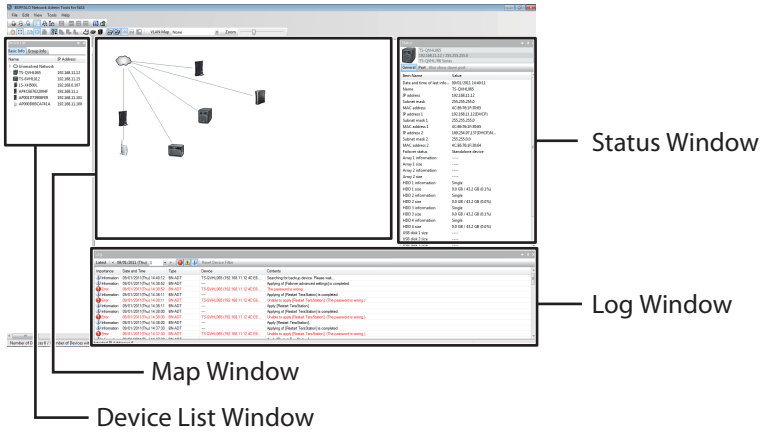
After installation, to start BN-ADT/NAS, from the Start menu, select *All Programs - BUFFALO - BUFFALO Network Admin Tools - BUFFALO Network Admin Tools*.
Note:
For Windows 8, click *BUFFALO Network Admin Tools*.

Note:
BN-ADT/NAS communicates using the protocols and port numbers shown below. If a firewall is installed on the network, configure it to allow communication using the protocols and port numbers below.

Device	Protocol and Port Number		
	Send (Computer -> Device)	Send (Computer -> Internet)	Receive (Device -> Computer)
TeraStation	TCP/UDP: 22936 (Detection, status, and TeraStation functions) UDP: 2304 (TeraStation startup) ICMP (Ping)	TCP: 80 (Update check)	UDP: 514 (Syslog)
Other devices	UDP: 161 (Specifying ID address range for detection, status, and SNMP) ICMP (Specifying IP address range for detection and Ping)	—	UDP: 514 (Syslog)

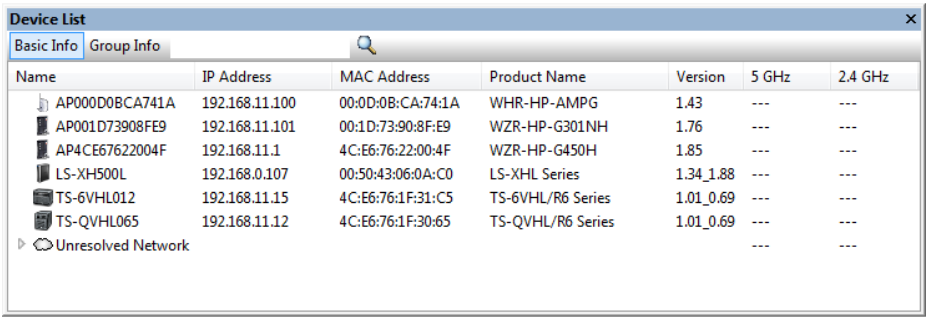
Screen Elements

Overall



Immediately after installing BN-ADT/NAS, the devices are not displayed as shown in the screen above.
From the menu, select *Tools - Scan for New Devices* to scan for and display the connected devices.

Device List Window

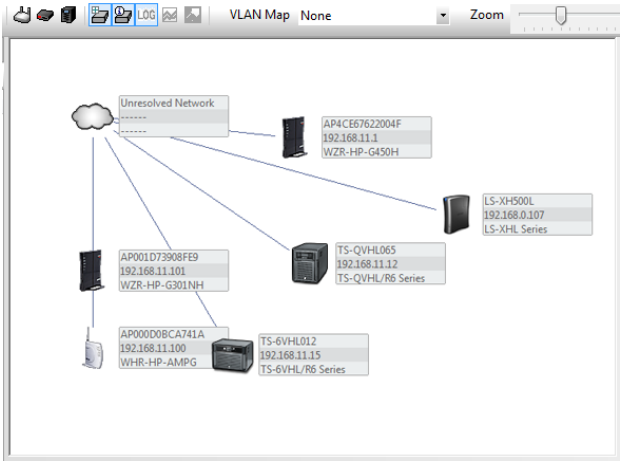


Basic Info

This displays a list of the devices detected by BN-ADT/NAS.

Map Window

Detected NAS devices are displayed as icons in a diagram.



Note:
The "VLAN Map" at the top of the screen is not used by BN-ADT/NAS.

Zoom

The scale of the Map window can be adjusted.

Note:
The icons displayed in the Map window can be changed by the right-click menu *View/Manage - Change Icon*.

Status Window

This displays the status of the selected device.

General

This displays the IP address and other general information.

Port

This is not used in BN-ADT/NAS.

Also show down port

This is not used in BN-ADT/NAS.

Status Bar

This displays the number of devices detected by BN-ADT/NAS.

Number of Devices

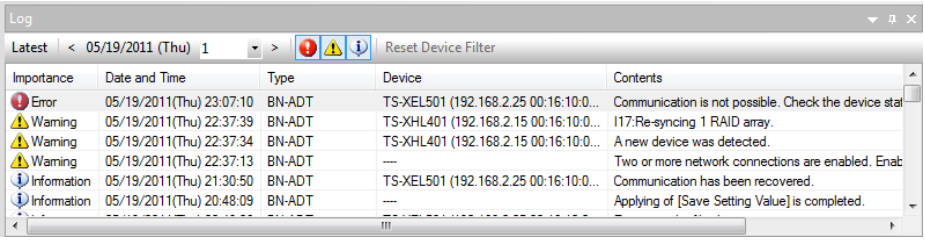
This is the total number of devices detected by BN-ADT/NAS and registered in the database. This number includes devices unable to be managed by BN-ADT/NAS.

Number of Devices with Detected IP Addresses

This is the number of devices managed by BN-ADT/NAS among the devices detected and registered in the database.

Log Window

Logs are displayed based on the selected content.The options below are also available.


Log
Latest
< 05/19/2011 (Thu) 1 >
Reset Device Filter
Importance
Date and Time
Type
Device
Contents
Error 05/19/2011(Thu) 23:07:10 BN-ADT TS-XEL501 (192.168.2.25 00:16:10:0... Communication is not possible. Check the device stat
Warning 05/19/2011(Thu) 22:37:39 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... I17:Re-syncing 1 RAID array.
Warning 05/19/2011(Thu) 22:37:34 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... A new device was detected.
Warning 05/19/2011(Thu) 22:37:13 BN-ADT --- Two or more network connections are enabled. Enab
Information 05/19/2011(Thu) 21:30:50 BN-ADT TS-XEL501 (192.168.2.25 00:16:10:0... Communication has been recovered.
Information 05/19/2011(Thu) 20:48:09 BN-ADT --- Applying of [Save Setting Value] is completed.

Latest

This displays the latest logs.

Selected Date

This displays the logs for a specific date.

Note:
When a log exceeds a certain size, it is automatically divided into multiple parts. Click the ▼ to the right of the date column to see the next part of the log that you want to view.

Error

This displays the error logs.

Warning

This displays the warning logs.

Information

This displays the information logs.

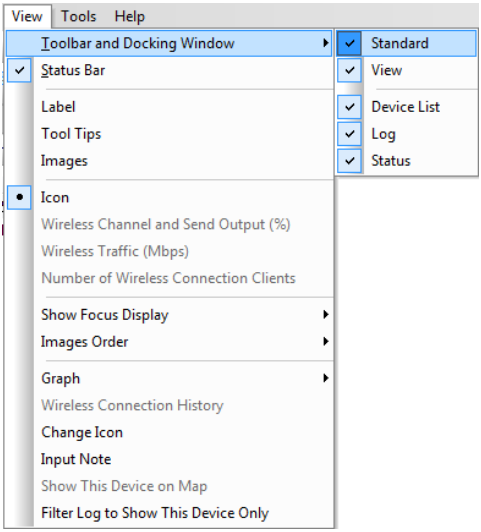
Reset Device Filter

The resets the filter that displays the logs for a specific device only.

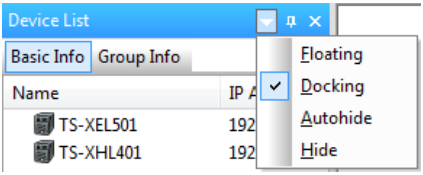
Note:
To display the logs for a specific device only, right-click the device that you want to filter in the Map window and select *View/Manage - Filter Log to Show This Device Only*.

Toolbar and Docking Window

You can select to hide or show the Device List window, Status window, and Log window in *Toolbar and Docking Window*.



The settings can also be made individually.



Floating

The windows are each separated from the main window and can be freely arranged on the screen.

Docking

The windows are all attached to the main window as one body and the windows are arranged in their standard positions.

Autohide

The windows are normally hidden. They appear when the mouse pointer is placed over them.

Hide

The windows are not shown. To show the windows, change the setting in *Toolbar and Docking Window*.

3 Setup

Introduction

Update your TeraStations to the latest firmware before using them with BN-ADT/NAS. Minimum firmware versions are listed below.

TS-XL/R5, TS-RXL/R5, TS-WXL/R1,
TS-WXL/1D, TS-XEL/R5, TS-XHL/R6.....Firmware version 1.40 or later

TS-HTGL/R5, TS-RHTGL/R5.....Firmware version 1.35 or later

WS-QL/R5.....Firmware version 1.10 or later

WS-WVL/R1, WS-QVL/R5, WS-6VL/R5, WS-RVL/R5,
TS-WVHL/R1, TS-QVHL/R6, TS-6VHL/R6, TS-8VHL/R6, TS-RVHL/R6
TS5200D, TS5400D, TS5600D, TS5800D, TS5400R.....Firmware version 1.00 or later

- If using a WS-QL/R5 firmware version earlier than version 1.10, update the Client Util Service to the latest version.
- With older firmware, detected devices will be shown in the Network Map, but BN-ADT/NAS functions may not be available.
- Firmware versions older than those shown above cannot use the *Update Firmware* function in BN-ADT/NAS to update the firmware.
- Buffalo network storage products not supported by BN-ADT/NAS are also detected and shown on the Network Map window, but operation of BN-ADT/NAS functions with these devices is not guaranteed.
- If using the TS-HTGL/R5 or TS-RHTGL/R5, the TeraStation firmware cannot be updated in BN-ADT/NAS.

Setup Overview

After installing BN-ADT/NAS, scan for TeraStations on the network and configure them as needed. BN-ADT/NAS can detect TeraStations on the same broadcast domain as the computer where BN-ADT/NAS is installed.
TeraStations may be on the same subnet as the computer running BN-ADT/NAS, or on different subnets if routing is configured so that network communication is possible in both directions.

Note:
Before changing your TeraStation's settings with BN-ADT/NAS, back up the current settings and reset it to factory defaults. For more on backing up settings with NS-SHFT, refer to your TeraStation documentation.

Setup Procedure

Change settings in the order shown below.

Step 1 Scan for New Devices (page 17)

↓

Step 2 IP Address Settings (page 18)

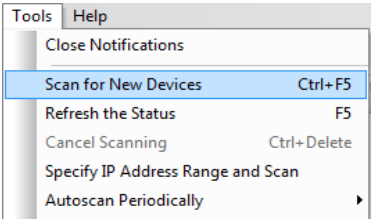
↓

Settings below are optional

- IP Address Advanced Settings (page 22)
- Save Setting Value (page 25)
- Restore Setting Value (page 26)
- Check Backup Settings (page 27)
- Monitor Array/Disk Usage Rate (page 28)
- Show Error/Information (page 29)
- I'm Here (page 29)
- Update Firmware (page 30)
- Failover configuration (page 31)
- Restart TeraStation (page 40)
- Shut Down TeraStation (page 40)
- Start TeraStation (page 40)

Step 1 Scan for New Devices

After BN-ADT/NAS is installed, click *Tools - Scan for New Devices* to preform an initial scan for network devices. After a short time elapses, the devices connected to the network are detected.



Notes:

- Only the Buffalo NAS devices in the same broadcast domain as the computer with BN-ADT/NAS installed can be managed. To scan for devices on networks outside the router or layer 3 switch, select *Tools - Specify IP Address Range and Scan*. Scanning can take considerable time, and some devices may be unable to be detected.
- If *Tools - Autoscan Periodically* is enabled, a scan is performed periodically for devices that were added or removed.
- Incompatible devices and firmware versions may cause scanning to take a long, long time.
- The scanning progress can be checked using the Log Window (page 12) and the progress bar at the bottom right of the window.
- *Scan for New Devices* also scans for new devices in the broadcast domain in addition to devices that are already registered in the database.
- *Refresh the Status* reacquires information from devices registered in the database.

Step 2 IP Address Settings

This shows how to set the IP address for a detected device.

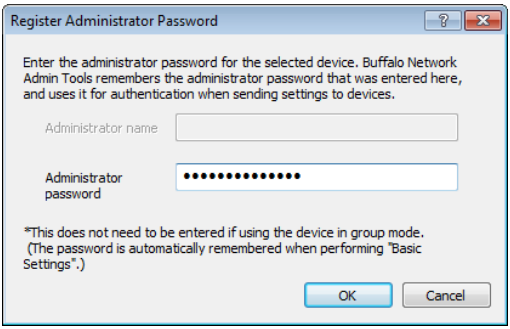
If the device whose IP address will be set is connected to the same broadcast domain, the IP address can be set using the procedure below even if the IP segment is different from the computer making the setting.

If the IP address is set dynamically by a DHCP server, a fixed IP address can be set here.

Note:
This function cannot be used for devices that are connected outside the broadcast domain.

1 In the Map window, right-click the TeraStation whose IP address you want to set and select *Register Administrator Password*.

2 Enter the TeraStation's administrator password and click *OK*.


Register Administrator Password
Enter the administrator password for the selected device. Buffalo Network Admin Tools remembers the administrator password that was entered here, and uses it for authentication when sending settings to devices.
Administrator name
Administrator password
*This does not need to be entered if using the device in group mode. (The password is automatically remembered when performing "Basic Settings".)
OK
Cancel

Note:
If using the WS-VL series or WS-QL series, enter the administrator username in the field for Administrative Username.

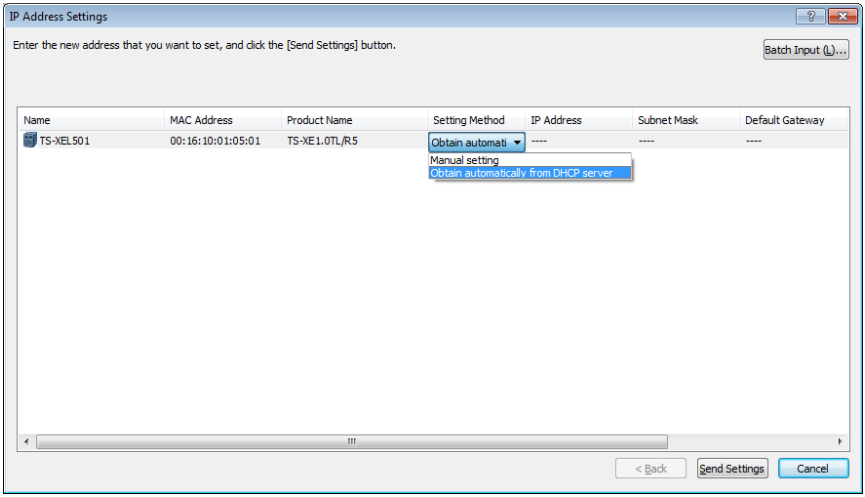
3 In the Map window, right-click the device whose IP address you want to set and select *IP Address Settings*.

Multiple devices can be selected from the Check Target Device window.

4 From the list, click *Setting Method* and select "Manual setting" or "Obtain automatically from DHCP server".

Notes:

- When using the TS-VHL series, the primary DNS and secondary DNS cannot be set for some firmware versions.
- When using the TS-HTGL series, the primary DNS and secondary DNS cannot be set.



5 If "Manual setting" is selected in Step 4, click and set the IP address and subnet mask.

6 Click *Send Settings* to complete the settings.

7 Execute "Step 1 Scan for New Devices" (page 17) to refresh to the latest information.

Step 3 TeraStation-specific Settings

If necessary, make the specific settings for your TeraStation.

Notes:

- The supported functions vary depending on the TeraStation series.
- If the TeraStation is running in EM mode (recovery mode), only "IP Address Advanced Settings" can be changed.
- You can't change the settings on the WS-QL and -WS-VL series if they're using Active Directory.

	TS5000 series TS5200D TS5400D TS5600D TS5800D TS5400R	TS-VHL series TS-WVHL/R1 TS-QVHL/R6 TS-6VHL/R6 TS-8VHL/R6 TS-RVHL/R6	TS-X series TS-XL/R5 TS-RXL/R5 TS-WXL/R1 TS-WXL/1D TS-XEL/R5 TS-XHL/R6	TS-HTGL series TS-HTGL/R5 TS-RHTGL/R5
IP Address Advanced Settings (page 22)	○	○	○	○
Save Setting Value (page 25)	–	–	○	○
Restore Setting Value (page 26)	–	–	○	○
Check Backup Settings (page 27)	○	○	○	○
Monitor (Set) Array/ Disk Usage Rate (page 28)	○	○	○	○
Show (Set) Error/ Information (page 29)	○	○	○	○
I'm Here (page 29)	○	○	○	○
Update Firmware (page 30)	○	○	○	–
Failover configuration (page 31)	○	○	–	–
Restart TeraStation (page 40)	○	○	○	○
Shut Down TeraStation (page 40)	○	○	○	○
Start TeraStation (page 40)	–	–	○ (*)	–

* The TS-XEL/R5 is not supported.

○ : Available, – : Not Available

	WS-QL series WS-QL/R5 WS-VL series WS-WVL/R1 WS-QVL/R5 WS-6VL/R5 WS-RVL/R5
IP Address Advanced Settings (page 22)	○
Save Setting Value (page 25)	–
Restore Setting Value (page 26)	–
Check Backup Settings (page 27)	–
Monitor (Set) Array/ Disk Usage Rate (page 28)	○
Show (Set) Error/ Information (page 29)	–
I'm Here (page 29)	○
Update Firmware (page 30)	–
Failover configuration (page 31)	–
Restart TeraStation (page 40)	○
Shut Down TeraStation (page 40)	○
Start TeraStation (page 40)	–

Note:
If an administrator password is set in the TeraStation, perform steps 1 and 2 in the procedure in "Step 2 IP Address Settings" before making the settings below.

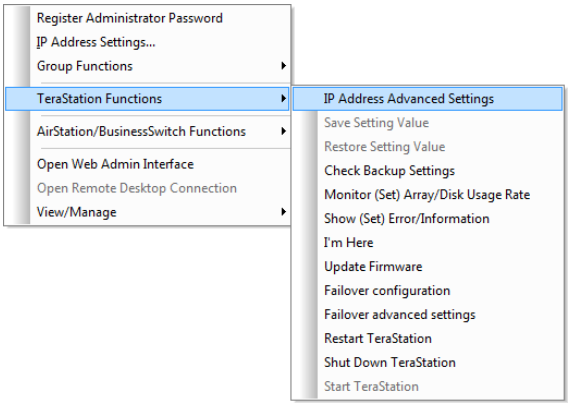
IP Address Advanced Settings

Set the IP address in the detected TeraStation.

Notes:

- You can't change the WS-QL and WS-VL series' IP address if they're using Active Directory.
- Although the IP address can still be set in "Step 2 IP Address Settings", use the procedure below to configure a default gateway or second LAN port.
- If the device whose IP address will be set is located in the same broadcast domain, the procedure below can be used to set the IP address even if the computer making the change is on a different subnet.

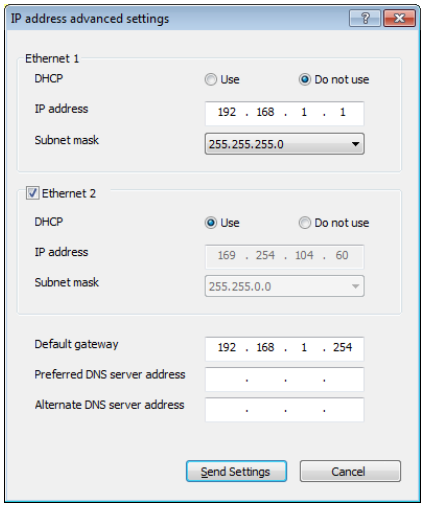
1 In the Map window, right-click the TeraStation whose IP address you want to set, and select *TeraStation Functions - IP Address Advanced Settings*.



2 Make the settings below.

Notes:

- In the WS-VL series, Ethernet 1 and Ethernet 2 may not match the order of the WS-VL network connections (local area connections).
  Example: If connected to Ethernet 1 (LAN1), it is displayed as the WS-VL local area connection 2 network.
- When using the TS-VHL series, the preferred DNS server address and alternate DNS server address cannot be set for some firmware versions.
- When using the TS-HTGL series, the preferred DNS server address and alternate DNS server address cannot be set.
- In the TS-X series, the IP address of LAN2 cannot be changed from "Do not use" to "Use" in some firmware versions. If this happens, change the setting from NAS Navigator2 or Settings.



Parameter	Description
Ethernet 1	The first LAN port is set here.
DHCP	Set to "Use" or "Do not use".
IP address	If DHCP is disabled, set the IP address here.
Subnet mask	If DHCP is disabled, set the subnet mask here.
Ethernet 2	If there are multiple LAN ports, they will be listed separately and may be configured individually. The settings are identical to those for Ethernet 1.
Default gateway	If DHCP is disabled, set the IP address of the default gateway.
Preferred DNS server address	Set the IP address of the preferred DNS server.

Parameter	Description
Alternate DNS server address	Set the IP address of the alternate DNS server.

3 When configuration is complete, click *Send Settings*.

The TeraStation will scan automatically. Wait until the scan is complete. The log window shows the process.

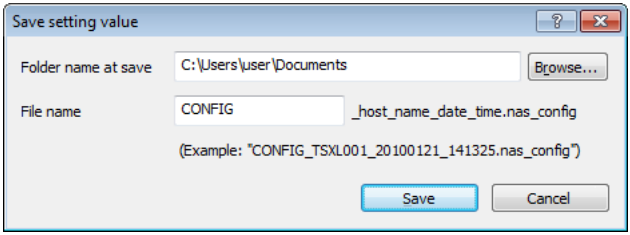
Save Setting Value

Use the proceedure below to save the TeraStation's settings to a file.

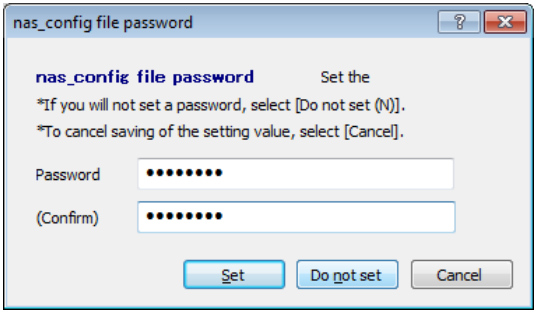
Note:
This function is available for TS-X series and TS-HTGL series only.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Save Setting Value*.

2 Specify the file name and folder where the file will be saved and click *Save*.



3 To set a password, enter the password and click *Set*. If you do not want to set a password, click *Do not set*.



Restore Setting Value

The values set in the TeraStation can be restored from the file using the procedure below.

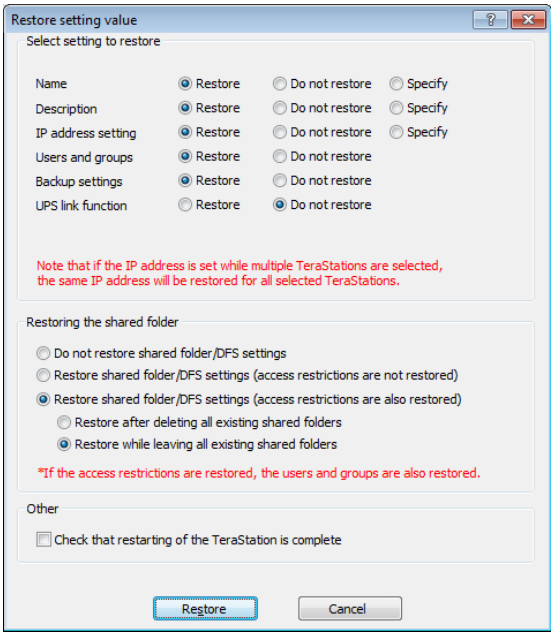
Note:

Only TS-X and TS-HTGL series TeraStations support this.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Restore Setting Value*.

2 Select the setting file and click *Open*.

3 Select the items to restore and click *Restore*.


Restore setting value
Select setting to restore
Name
Description
IP address setting
Users and groups
Backup settings
UPS link function
Restore
Do not restore
Specify
Note that if the IP address is set while multiple TeraStations are selected, the same IP address will be restored for all selected TeraStations.
Restoring the shared folder
Do not restore shared folder/DFS settings
Restore shared folder/DFS settings (access restrictions are not restored)
Restore shared folder/DFS settings (access restrictions are also restored)
Restore after deleting all existing shared folders
Restore while leaving all existing shared folders
*If the access restrictions are restored, the users and groups are also restored.
Other
Check that restarting of the TeraStation is complete
Restore
Cancel

Note:

If a password was set when saving the setting values, a window appears asking for the password. Enter the password, and click *OK*.

4 If the message "Execute the restore process?" is displayed, click *Execute*.

Check Backup Settings

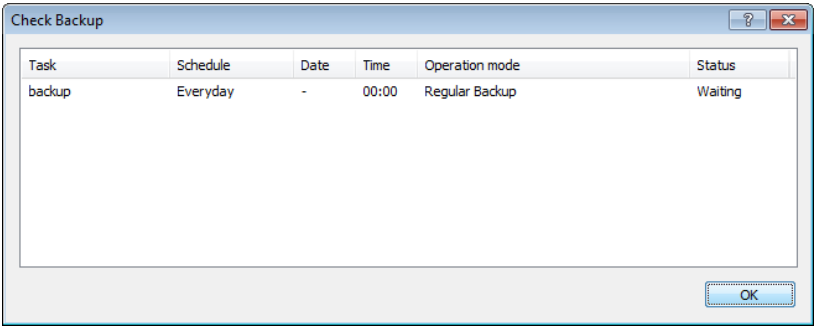
The backup settings of the TeraStation can be checked using the procedure below.

Notes:

- WS-QL and WS-VL series TeraStations do not support this feature.
- The TeraStation backup settings cannot be set from BN-ADT/NAS. For details on the backup procedure, read the manual of the respective device.

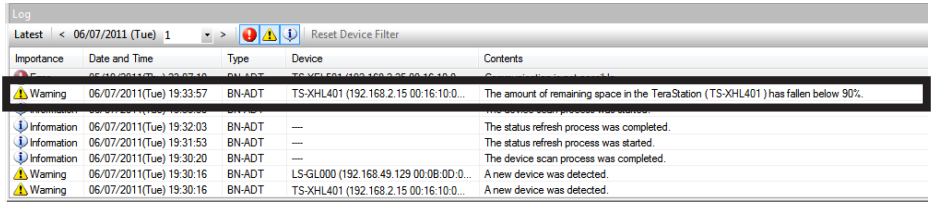
1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Check Backup Settings*.

2 The TeraStation backup settings are displayed. Check the settings and click *OK* to close.



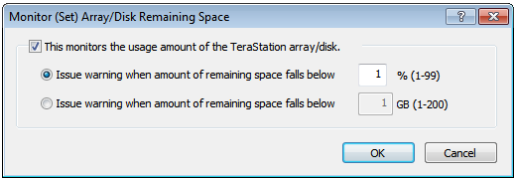
Monitor Array/Disk Usage Rate

The array/disk usage rate can be monitored and warnings can be recorded in the log when the value falls below a certain setting by using the procedure below.


Log
Latest
< 06/07/2011 (Tue) 1 >
Reset Device Filter
Importance
Date and Time
Type
Device
Contents
Warning 06/07/2011(Tue) 19:33:57 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... The amount of remaining space in the TeraStation (TS-XHL401) has fallen below 90%.
Information 06/07/2011(Tue) 19:32:03 BN-ADT --- The status refresh process was completed.
Information 06/07/2011(Tue) 19:31:53 BN-ADT --- The status refresh process was started.
Information 06/07/2011(Tue) 19:30:20 BN-ADT --- The device scan process was completed.
Warning 06/07/2011(Tue) 19:30:16 BN-ADT LS-GL000 (192.168.49.129 00:0B:0D:0... A new device was detected.
Warning 06/07/2011(Tue) 19:30:16 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... A new device was detected.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Monitor (Set) Array/Disk Usage Rate*.

2 Check "This monitors the usage amount of the TeraStation array/disk" and click *OK*.


Monitor (Set) Array/Disk Remaining Space
This monitors the usage amount of the TeraStation array/disk.
Issue warning when amount of remaining space falls below
1
% (1-99)
Issue warning when amount of remaining space falls below
1
GB (1-200)
OK
Cancel

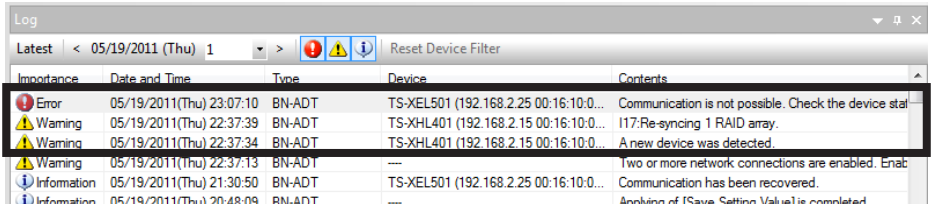
Note:
Because a TeraStation is recorded in the log whenever it is detected, the setting of *Tools - Autoscan Periodically - Scan for New Devices* is recommended.

Show Error/Information

The TeraStation can be monitored, and errors and information can be recorded in the log using the procedure below.

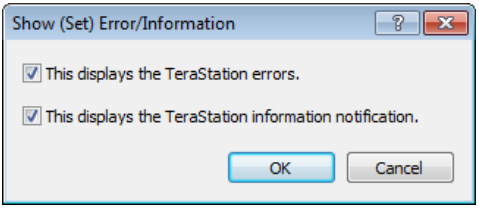
Note:

WS-QL and WS-VL series TeraStations do not support this feature.


Log
Latest
< 05/19/2011 (Thu) 1 >
Reset Device Filter
Importance
Date and Time
Type
Device
Contents
Error 05/19/2011(Thu) 23:07:10 BN-ADT TS-XEL501 (192.168.2.25 00:16:10:0... Communication is not possible. Check the device stat
Warning 05/19/2011(Thu) 22:37:39 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... I17:Re-syncing 1 RAID array.
Warning 05/19/2011(Thu) 22:37:34 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... A new device was detected.
Warning 05/19/2011(Thu) 22:37:13 BN-ADT --- Two or more network connections are enabled. Enab
Information 05/19/2011(Thu) 21:30:50 BN-ADT TS-XEL501 (192.168.2.25 00:16:10:0... Communication has been recovered.

1 In the Map window, right-click the TeraStation, and select *TeraStation Functions - Show (Set) Error/Information*.

2 Insert check marks for the items that you want to view and click *OK*.



Notes:

- Because a TeraStation is recorded in the log whenever it is detected, the setting of *Tools - Autoscan Periodically - Scan for New Devices* is recommended.
- For lists of the logged errors and information, see "TeraStation Error List" (page 75) and "TeraStation Information List" (page 78).

I'm Here

You can make the TeraStation play a sound using the procedure below. This is useful for identifying a specific TeraStation when using multiple TeraStations.

Note:

When using the WS-QL and WS-VL series, the I'm Here function cannot be used in an environment where they are participating in an Active Directory.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - I'm Here*.

2 A sound is played from the TeraStation.

Update Firmware

The TeraStation firmware can be updated using the procedure below.
If the procedure in "Update Check Settings" (page 63) or "Check for Updates" (page 64) is used, use the download service on the Buffalo website (buffalotech.com) to download the firmware. When the downloaded file is double-clicked, the file is extracted, and an HTML file containing the update procedure is automatically opened. Follow the instructions in the displayed HTML file to check the firmware file.

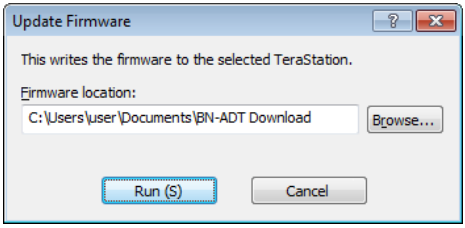
Notes:

- TS-HTGL, WS-QL, and WS-VL series TeraStations do not support this feature.
- If using an older firmware version that does not support BN-ADT/NAS, update the firmware using the procedure contained in the manual for the respective device.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Update Firmware*.

2 Select the firmware file and click *Run*.

Next, follow the on-screen instructions.



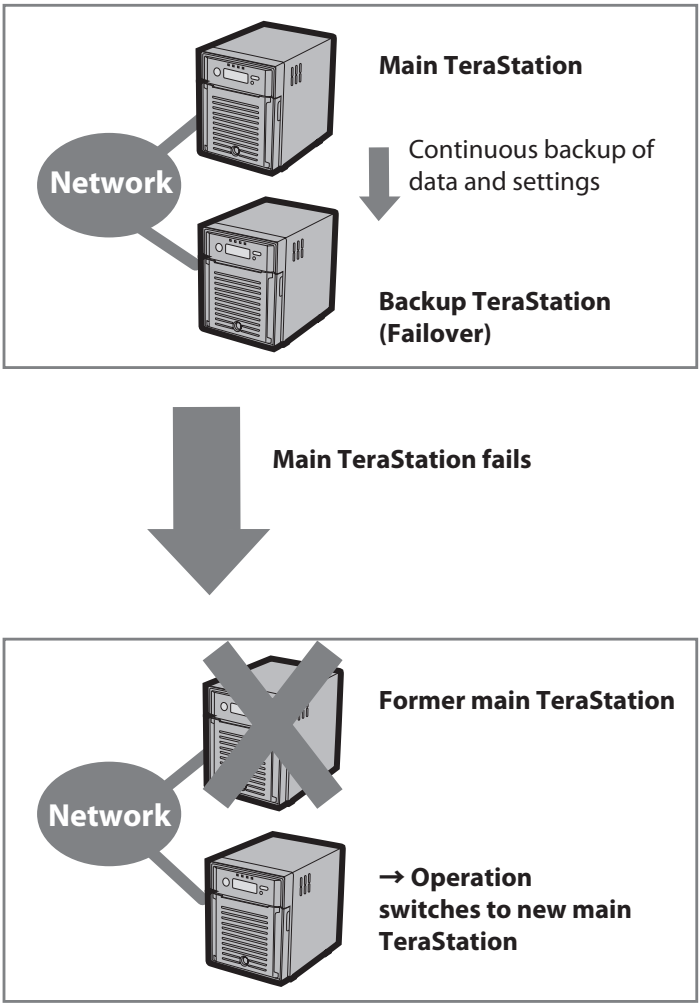
Notes:

- When updating, do not turn off the power for the computer, device, or hubs and switches on the network.
- Never attempt to access any files in the device during the update process.
- In some cases, it can take considerable time for the update process to be completed, but always wait until a message is displayed.
- When using a wireless connection, in some cases, the firmware may not be updated normally due to the wireless conditions. If possible, change to a wired connection before performing the update.
- The update may fail if multiple network interfaces are connected to the computer performing the update. Disable the interfaces not connecting any devices before performing an update.

Failover Configuration

If your system configuration includes another TeraStation, failover can be set to automatically copy files from the failover source TeraStation (main TeraStation) to the failover target TeraStation (backup TeraStation) so that the main TeraStation and backup TeraStation have the same folder configuration (there may be a time lag in data synchronization due to the time it takes to write data to the backup TeraStation).

If a problem occurs in the main TeraStation so that it can no longer be accessed, operation is automatically switched to the backup TeraStation.



Conditions for determining when the main TeraStation has failed:

■ When the backup TeraStation is unable to detect the main TeraStation for a certain amount of time

By default, the backup TeraStation attempts to detect the main TeraStation at 60-second intervals. If it is unable to detect the main TeraStation after five consecutive attempts, the main TeraStation is determined to have failed. To change the settings, right-click the TeraStation icon in the map screen, click *TeraStation Functions – Failover configuration*, and change the setting in the displayed screen. Even if the main TeraStation has not failed, if the backup TeraStation is unable detect the main TeraStation for five consecutive attempts due to a network problem, this is determined to be a failure, and operation will switch to the backup TeraStation. If this happens, failover must be reconfigured in the original main TeraStation.

■ When one of the following errors occurs in the main TeraStation

- E12 Cooling Error
- E13 RAID in Degrade Mode
- E14 Cannot Mount RAID Array
- E15 Too Many Bad Sectors
- E16 Hard Drive Not Found
- E22 Cannot Mount Hard Drive
- E23, E30 Hard Drive Failed

If any of the above errors occurs, the main TeraStation is automatically shut down.

Supported protocols:

If data is written to the main TeraStation using any of the protocols below, the files and folders are copied to the backup TeraStation. Files and folders written using unsupported protocols are not copied.

- Windows file sharing (SMB, CIFS)
- Apple file sharing (AFP)
- SFTP/FTP/FTPS
- NFS

If data is written by AFP from Mac OS X, the system processing speed may slow down. If this happens, try using SMB to write data.

If NFS is set to kernel mode, files and folders written using NFS are not copied to the backup TeraStation. The NFS setting can be changed from kernel mode to user mode in the TeraStation's settings by navigating to *Network – NFS – NFS Service*.

Function settings that cannot be copied to backup TeraStation:

The settings below are not copied from the main TeraStation to the backup TeraStation. If operation is switched from the main TeraStation to the backup TeraStation, make a note of the original settings so that they can be made manually.

- WebAccess
- Web server (including php)
- MySQL Server
- Synchronization with UPS
- Print Server
- Direct Copy

Failover cannot be used while using the functions below.

- Access restrictions in ActiveDirectory environments
- Access restrictions in NT domain servers
- Sleep Timer
- Replication
- MySQL Server
- Surveillance Cameras
- Port Trunking
- Volume encryption
- LVM volume
- Media Cartridge
- iSCSI
- Amazon S3

The operations below are unavailable while failover is being configured.

- Initialization of settings
- Changing of RAID configuration
- Formatting of hard drive
- Rebooting
- Rebooting from Settings
- Shutting down from Settings
- Changing settings of backup TeraStation from Settings
- Updating of firmware

Notes:

To perform any of the above operations, change to maintenance mode temporarily.

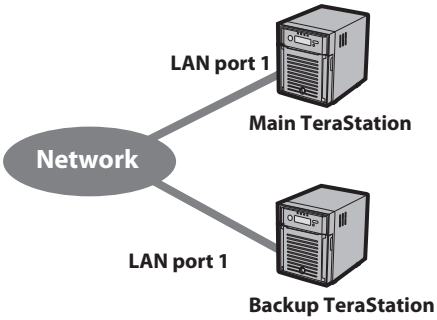
- To change to maintenance mode, right-click the TeraStation icon in the map screen and click *TeraStation Functions – Failover configuration*. In the displayed screen, select *Maintenance mode* and click *Send*. After the operation is completed, select *Cancel Maintenance Mode* and click *Send*.
- If failover is configured, change to maintenance mode before updating the firmware on the TeraStation.
- The settings for the backup TeraStation cannot be changed even if it is in maintenance mode.

Ethernet cable connection methods:

Use of the configurations below is recommended when making connections with Ethernet cables.

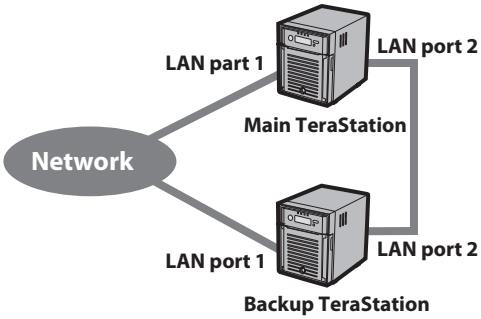
Note:
Use fixed IP addresses. Because the IP address of the TeraStation designated as the backup cannot be changed, set the IP address before configuring failover.

■ Connecting to the network at LAN port 1 and setting failover at LAN port 1



■ Connecting to the network at LAN port 1 and setting failover at LAN port 2

Note:
If both LAN ports 1 and 2 are connected as shown in the figure to the right, then the backup TeraStation will not take over operation from the main TeraStation even if the cable connected to LAN port 1 of the main TeraStation is disconnected.



Using with UPS:

Once failover is configured, you will not be able to set up a UPS link for the backup TeraStation. So, configure your UPS before configuring failover. UPS recovery can be configured for both the main TeraStation and the backup TeraStation. However, the UPS settings of the main TeraStation are not copied to the backup TeraStation. UPS settings for both TeraStations should be configured before configuring failover.

In the backup TeraStation's settings, if *synchronize with UPS connected to other TeraStation on the network* is selected so that operation is linked to the main TeraStation, then if the main TeraStation shuts down, the backup TeraStation will no longer be able to detect if there was a power outage. In this case, connect the UPS communication cable from the main TeraStation to the backup TeraStation and reconfigure the UPS link settings.

Use the same model and same capacity TeraStation for the main TeraStation and backup TeraStation.
If the capacity of the main TeraStation is larger than that of the backup TeraStation, an error occurs, and files cannot be copied to the backup TeraStation. The message "Replication I33 ReplicateFailure" appears on the LCD panel of the main TeraStation. If this happens, disable failover in Settings of the main TeraStation.

All data in the TeraStation designated as the backup TeraStation will be erased.
Before configuring failover, move any needed data to another hard drive or storage device.
Also, during configuration of failover, the backup TeraStation's settings cannot be changed.

Failover is intended for TeraStations on the same network. It should not be used for remote backup applications.

To configure failover, use the procedure below.

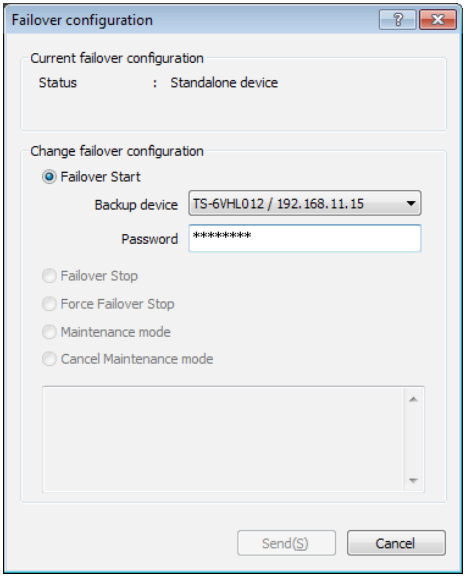
1 Before configuring failover, right-click the TeraStation icon in the map screen and click *TeraStation Functions – Restart TeraStation* to restart the TeraStation.

2 After restarting, right-click the TeraStation icon in the map screen and click *TeraStation Functions – Failover configuration*.

3 From *Backup device*, select the TeraStation that will be used as the backup TeraStation.

Notes:

- Only one TeraStation can be set as the backup TeraStation.
- Check beforehand that no error or information messages appear on the LCD panel of the backup TeraStation.



4 In *Password*, enter the administrator password of the TeraStation selected as the backup TeraStation.

5 Click *Send*.

6 If the administrator password is correct, the backup TeraStation will beep.

Notes:

- To disable failover, right-click the TeraStation icon in the map screen, and from the displayed menu, click *TeraStation Functions – Failover configuration*. Select *Failover Stop* and click *Send*. Failover can also be disabled by clicking *Failover Stop* in the backup TeraStation's settings.
  If failover cannot be disabled, click *TeraStation Functions – Failover configuration*. Select *Force Failover Stop*, and click *Send*. After performing a forced disable, restart the main TeraStation and the backup TeraStation. After restarting, check the settings (such as the IP address) and data in the shared folder for both the main TeraStation and the backup TeraStation. After a forced disable, the shared folder of the backup TeraStation is set to read-only. If necessary, configure failover again.
- During configuration of failover, if "Replication I33 ReplicateFailure" is displayed on the LCD panel, synchronization between the main TeraStation and backup TeraStation has failed. If this occurs, navigate to *System – Backup – Replication* in Settings and choose *Resynchronize*.
- If replication is set or was set for multiple folders, initialize the settings before reconfiguring failover. If multiple folders were set before, failover cannot be used even if the settings are changed back to disable replication. This is not a problem, however, if only a single folder was set for replication.
- Files are transferred asynchronously. File transfer may take considerable time depending on the network environment or the TeraStation's operating status.
- The system processing speed may become slow if the TeraStation is accessed by several users simultaneously.
- A large number of files should not be continuously written over a long period of time.
- The main TeraStation cannot be used as the backup location for Time Machine supported in Mac OS X.
- If the failover operation occurs while email notification is enabled, perform the following operation at the main TeraStation after the failover process is done. Navigate to *System – Maintenance – Email Notification* and click *Modify Settings – Save*.

Maintenance mode:

Change to maintenance mode before configuring failover, turning off the TeraStation temporarily, or updating the firmware. After changing to maintenance mode, resume failover once the maintenance operation is completed.

Procedure for changing to maintenance mode
Right-click the icon of the main TeraStation in the map screen and click *TeraStation Functions – Failover configuration*. In the displayed screen, select *Maintenance mode* and click *Send*.

Procedure for returning from maintenance mode to activated failover status
Right-click the icon of the main TeraStation in the map screen, and click *TeraStation Functions – Failover configuration*. In the displayed screen select *Cancel Maintenance mode* and click *Send*.

Note:
Do not write a large number of files (more than 10,000) to the main TeraStation during maintenance mode. This could cause data synchronization to fail between the main TeraStation and backup TeraStation after resuming failover.

Service IP address setting:

The *Service IP address settings* in the *TeraStation Functions – Failover advanced settings* screen is the IP address that overrides the current setting when the backup TeraStation takes over operation from the main TeraStation.

If no service IP address is set or a fixed IP address is set, an attempt is made to inherit the IP address set for the main TeraStation. If the same IP address cannot be set, such as due to an IP address conflict, the same IP address may not be inherited. The IP address may also not be inherited in DHCP server environments.

Information shown on LCD panels when operation switches from main TeraStation to backup TeraStation:

LCD Message	Description
FailOver I49 LostMainTarget	This message (I49) is displayed on the LCD panel of the backup TeraStation when operation switches from the main TeraStation to the backup TeraStation.
FailOver E27 LostBackupTarget	This message (E27) is displayed on the LCD panel of the main TeraStation if it is no longer able to detect the backup TeraStation on the network.

Note:
The above message may also appear when a network problem occurs even when the TeraStation has not failed. If this happens, disable failover in both TeraStations' settings, then reconfigure it.

Restart TeraStation

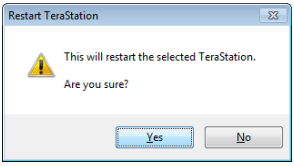
The TeraStation can be restarted using the procedure below.

Note:

When using the WS-QL and WS-VL series, the Restart TeraStation function cannot be used an environment where they are participating in an Active Directory.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Restart TeraStation*.

2 Click *Yes* to restart the TeraStation.



Shut Down TeraStation

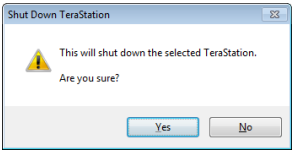
The TeraStation can be shut down using the procedure below.

Note:

When using the WS-QL and WS-VL series, the Shut Down TeraStation function cannot be used in an environment where they are participating in an Active Directory.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Shut Down TeraStation*.

2 Click *Yes* to shut down the TeraStation.



Start TeraStation

The TeraStation can be started using the procedure below.

Notes:

- This function can be used only in the TS-X series except for the TS-XEL.
- In Settings, go to *Network - Settings - IP Address Settings - Wake on LAN* and select *Enable*.

1 In the Map window, right-click the TeraStation and select *TeraStation Functions - Start TeraStation* to start the TeraStation.

4 Management Function

Overview of Management Function

BN-ADT/NAS includes a number of functions for managing devices. The main management functions are shown in the table below.

Main Management Functions	Description
Log Settings (page 42)	Syslog is used for centralized management of device logs.
Export Device List (page 46)	A list of the managed devices is saved as a CSV file.
Export Status (page 47)	The device status information is saved as a CSV file.
Ping Settings (page 48)	Ping is used to provide early detection of network faults.
Map (page 50)	The map is used to provide a visual representation of device connection statuses.
Input Note (page 58)	A note is attached to the device icon on the map.
Backup and Restore (page 59)	This manages the device settings.
External Application Settings (page 61)	This enables easy operation of frequently-used external applications.
Update Check Settings (page 63)	This enables a check for a firmware update in the device at product startup and at preset intervals.
Check for Updates (page 64)	This checks for a firmware update in the device.
Schedule Settings (page 67)	Frequently-used tasks are executed automatically at a preset date and time.
Open Settings (page 69)	This opens Settings for the device.
Open Remote Desktop Connection (page 69)	This opens the Remote Desktop for the device.

Log Settings: Using Syslog

Logs for each device are temporarily saved in the memory of the device itself. However, because of the limited size of this memory, the logs are gradually erased starting from the oldest ones. BN-ADT/NAS can be used as a syslog server for saving device logs to a computer hard drive or other location. Because of the large size of typical computer hard drives, this enables the saving of logs for extended periods of time. This also enables centralized management of logs from multiple devices.

Notes:

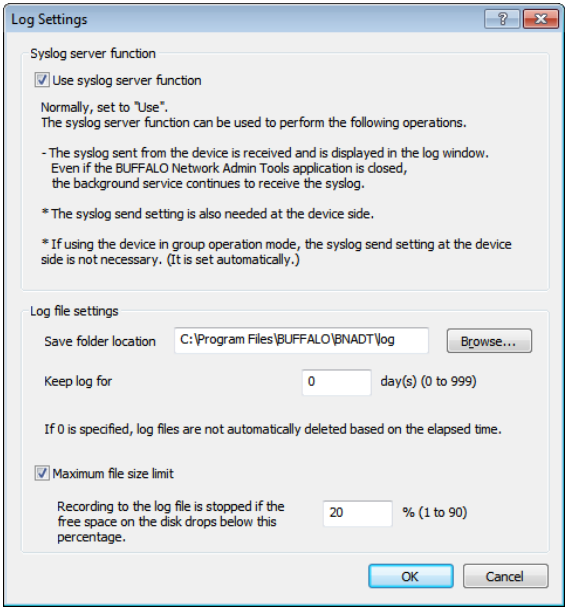
- Because this function is automatically started as a service, BN-ADT/NAS does not need to be running, and you do not need to be logged onto Windows.
- A fixed (manual) setting is recommended for the IP address of the device receiving the log.

Settings

BN-ADT/NAS can be used as a syslog server for collecting device logs by following the procedure shown below.

1 In the Main window of BN-ADT/NAS, select *Tools - Options - Log Settings*.

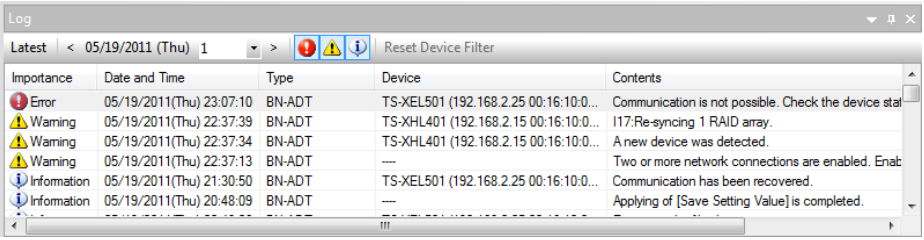
2 Set the various items, and click *OK*.


Log Settings
Syslog server function
Use syslog server function
Normally, set to "Use".
The syslog server function can be used to perform the following operations.
- The syslog sent from the device is received and is displayed in the log window.
Even if the BUFFALO Network Admin Tools application is closed,
the background service continues to receive the syslog.
* The syslog send setting is also needed at the device side.
* If using the device in group operation mode, the syslog send setting at the device side is not necessary. (It is set automatically.)
Log file settings
Save folder location
C:\Program Files\BUFFALO\BNADT\log
Browse...
Keep log for
0
day(s) (0 to 999)
If 0 is specified, log files are not automatically deleted based on the elapsed time.
Maximum file size limit
Recording to the log file is stopped if the free space on the disk drops below this percentage.
20
% (1 to 90)
OK
Cancel

Parameter	Description
Use syslog server function	If a check mark is inserted, BN-ADT/NAS is used as a syslog server. The device logs can be collected and saved as a file. (Default value: Check mark inserted (Use))
Save folder location	This specifies the saving location of the log. (Default location: (x86)C:\Program Files\BUFFALO\BNADT\log (x64)C:\Program Files(x86)\BUFFALO\BNADT\log)
Keep log for	The number of days that the log is saved is specified in the range from 0 to 999. If 0 is specified, all logs are saved, and old logs are not deleted. (Default value: 0 days)
Maximum file size limit	If a check mark is inserted, the size of the log file can be limited. If no limit is set, the log is recorded until the free space on the disk is full. (Default value: Check mark inserted (Limit used))
Recording to the log file is stopped if the free space on the disk drops below this percentage	This sets the conditions when limiting the log file size. (Default value: 20%)

Viewing the Log Window

The collected device logs can be viewed in the Log window.
If the Log window is not displayed, go to *View - Toolbar and Docking Window*, and insert a check mark for *Log*.


Log
Latest
< 05/19/2011 (Thu) 1 >
Reset Device Filter
Importance
Date and Time
Type
Device
Contents
Error 05/19/2011(Thu) 23:07:10 BN-ADT TS-XEL501 (192.168.2.25 00:16:10:0... Communication is not possible. Check the device stat
Warning 05/19/2011(Thu) 22:37:39 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... I17:Re-syncing 1 RAID array.
Warning 05/19/2011(Thu) 22:37:34 BN-ADT TS-XHL401 (192.168.2.15 00:16:10:0... A new device was detected.
Warning 05/19/2011(Thu) 22:37:13 BN-ADT --- Two or more network connections are enabled. Enab
Information 05/19/2011(Thu) 21:30:50 BN-ADT TS-XEL501 (192.168.2.25 00:16:10:0... Communication has been recovered.
Information 05/19/2011(Thu) 20:48:09 BN-ADT --- Applying of [Save Setting Value] is completed.

Click the items below to change the content that is viewed.

Parameter	Description
Latest	Clicking this displays the latest logs.
Selected Date	Clicking this displays the calendar. Use the calendar to specify the date that you want to view.
Window Position ▼	Clicking this enables selection of the divided log that you want to view. BN-ADT/NAS automatically divides the logs when they exceed a certain size.
Error	Clicking this turns the display of the error logs on and off. An error is a log of a serious situation requiring immediate action.
Warning	Clicking this turns the display of the warning logs on and off. A warning is a log of a situation where the taking of action must be considered.
Information	Clicking this turns the display of the information logs on and off. Information is a log of normal operation of the device.
Reset Device Filter	Clicking this resets the display filter for logs of a selected device only so that the logs for all devices are shown.

Filter Log to Show This Device Only

This setting can be used to display the logs for a selected device only.

In the Map window, right-click the device whose log you want to view, and select *View/Manage - Filter Log to Show This Device Only*.

Export Log in CSV Format

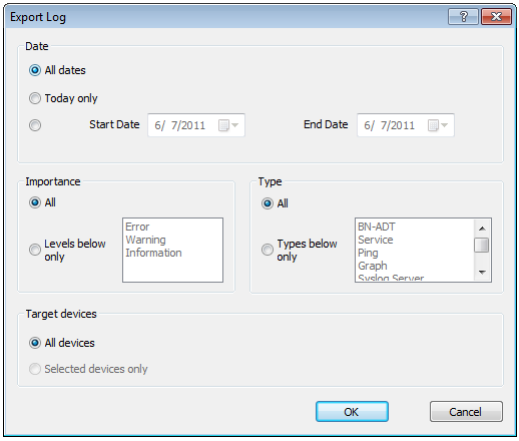
This setting can be used to save logs in the standard CSV format. Logs can also be saved by filtering based on specific conditions.

Note:

To save logs for selected devices only, first select the devices on the map.

1 In the Main window of BN-ADT/NAS, select *File - Export - Export Log*.

2 Set the various items, and click *OK*.



Parameter	Description
Date	Select *All dates* (Default setting), *Today only*, or a date range using *Start Date* and *End Date*.
Importance	Select *All* (Default setting) or *Levels below only* (Error, Warning, Information).
Type	Select *All* (Default setting) or *Types below only* (Individual syslog facility).
Target devices	Select *All devices* (Default setting) or *Selected devices only*.

Note:

If *Selected devices only* is selected for Target devices, the device(s) must be selected on the map before performing Step 1.

3 Specify the file name and the saving location, and click *OK*.

Export Device List

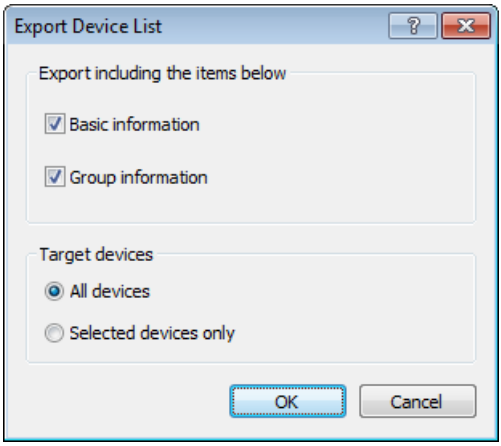
The Export Device List function can be used to save the information displayed in the Device List window (page 8) as a standard CSV format file.

Note:

To save information for selected devices only, first select the devices on the map.

1 In the Main window of BN-ADT/NAS, select *File - Export - Export Device List*.

2 Select the content and target device(s) to be exported, and click *OK*.



Parameter	Description
Basic Information	Information displayed in the Basic Info tab of the Device List window
Group Information	Information displayed in the Group Info tab of the Device List window

Note:

If *Selected devices only* is selected for Target devices, the device(s) must be selected on the map before performing Step 1.

3 Specify the file name and the saving location, and click *OK*.

Export Status

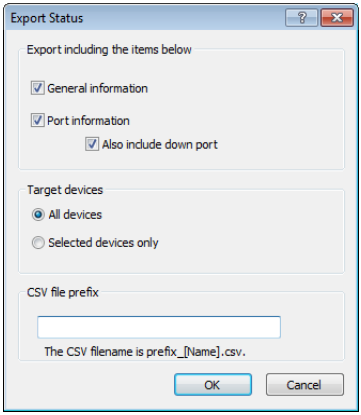
The Export Status function can be used to save the information displayed in the Status window (page 10) as a standard CSV format file.

Note:

To save information for selected devices only, first select the devices on the map.

1 In the Main window of BN-ADT/NAS, select *File* - *Export* - *Export Status*.

2 Select the content and target device(s) to be exported, and click *OK*.



Parameter	Description
General information	IP address and other information displayed in the General information tab of the Status window.
Port information	Information displayed in the port tab of the Status window. This does not include ports that are down.
Also include down port	Information on down ports, which is normally not displayed.
CSV file prefix	This enables specifying of the name. The actual file name is "prefix_*Device Name*.csv" for each device.

Note:

If *Selected devices only* is selected for Target devices, the device(s) must be selected on the map before performing Step 1.

3 Specify the file saving location, and click *OK*.

Using Ping

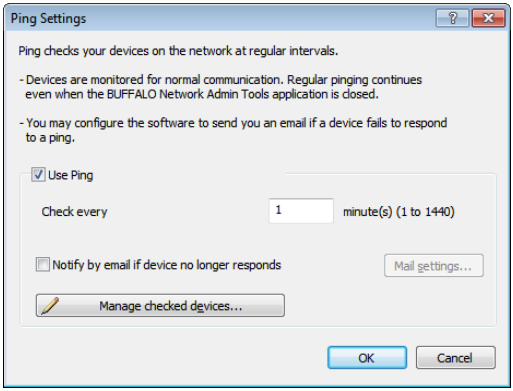
The Ping can be used to send a ping packet to a selected device periodically, and if no response is received, an email notification is sent to the administrator.

Notes:

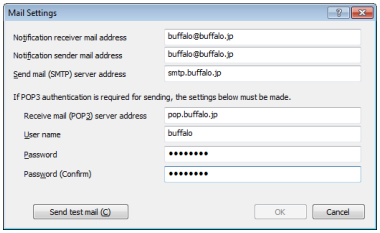
- Because this function is started automatically as a service, BN-ADT/NAS does not need to be started or logged in.
- If ping (ICMP) is blocked by a packet filter or other software, make the settings at the device side beforehand for responding to the ping packet.

1 In the Main window of BN-ADT/NAS, select *Tools* - *Options* - *Ping Settings*.

2 Set the various items and click *OK*.

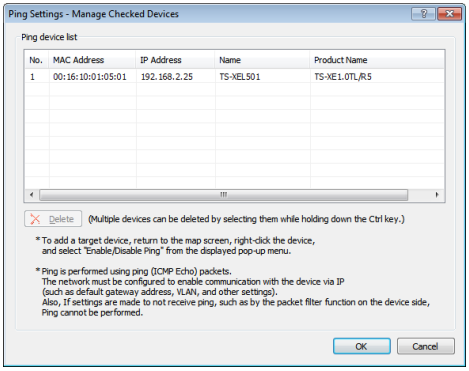

Ping Settings
Ping checks your devices on the network at regular intervals.
- Devices are monitored for normal communication. Regular pinging continues even when the BUFFALO Network Admin Tools application is closed.
- You may configure the software to send you an email if a device fails to respond to a ping.
Use Ping
Check every
1
minute(s) (1 to 1440)
Notify by email if device no longer responds
Mail settings...
Manage checked devices...
OK
Cancel

Mail Settings



- The mail port number can be set to any user-selected number. (page 49)
- The *OK* button cannot be clicked until the test mail is sent successfully.

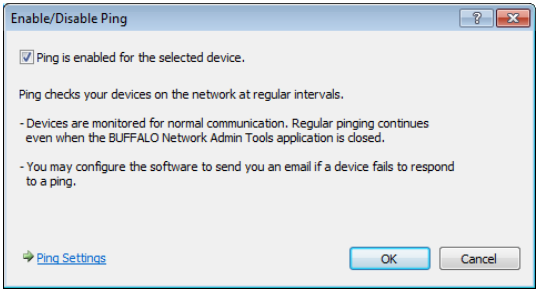
Management of Check Devices


Ping Settings - Manage Checked Devices
Ping device list
No.
MAC Address
IP Address
Name
Product Name
1
00:16:10:01:05:01
192.168.2.25
TS-XEL501
TS-XE1.0TL/R5
Delete
(Multiple devices can be deleted by selecting them while holding down the Ctrl key.)
* To add a target device, return to the map screen, right-click the device, and select "Enable/Disable Ping" from the displayed pop-up menu.
* Ping is performed using ping (ICMP Echo) packets.
The network must be configured to enable communication with the device via IP (such as default gateway address, VLAN, and other settings).
Also, If settings are made to not receive ping, such as by the packet filter function on the device side, Ping cannot be performed.
OK
Cancel

Parameter	Description
Use Ping	When a check mark is inserted here, Ping is enabled. (Default: Check mark inserted (Use))
Check every X minute(s)	Specify the check interval in minutes. (Default: Every 1 minute)
Notify by email if device no longer responds	To send notification by email, insert a check mark here, and set the required items in the Mail Setting window. (Default: Check mark removed (Do not send notification)
Manage checked devices	This displays a list of checked devices. Also, devices can be removed from the checking group.

3 Right-click the respective device, and select *View/Manage - Enable/Disable Ping*.

4 Insert a check mark for "Ping is enabled for the selected device" and click *OK*.


Enable/Disable Ping
Ping is enabled for the selected device.
Ping checks your devices on the network at regular intervals.
- Devices are monitored for normal communication. Regular pinging continues even when the BUFFALO Network Admin Tools application is closed.
- You may configure the software to send you an email if a device fails to respond to a ping.
Ping Settings
OK
Cancel

Notes: Mail port number settings

- Any user-selected port number can be set for sending mail and receiving mail in the Mail Settings window (page 48). Add a ":" (colon) at the end of the "Send mail (SMTP) server address" and "Receive mail (POP3) server address", and set the port number that you want to use.
  Setting example: smtp.buffalotech.com: 587
  pop.buffalotech.com: 110
- If no port number is specified, the default port numbers below will be used.
  Default numbers: Send mail (SMTP) 25
  Receive mail (POP3) 110

Map

The NAS detected by BN-ADT/NAS are displayed as icons on a map diagram.

To View Devices from a Different Network Segment on the Map

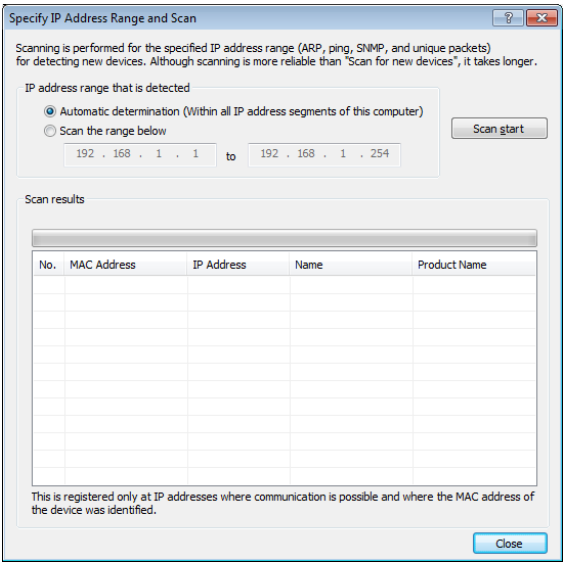
Make the setting below to view devices from a different network segment than the computer where BN-ADT/NAS is installed on the map.

Note:

Some network devices may not appear on the map even if the setting below is made.

1 In the Main window of BN-ADT/NAS, select *Tools - Specify IP Address Range and Scan*.

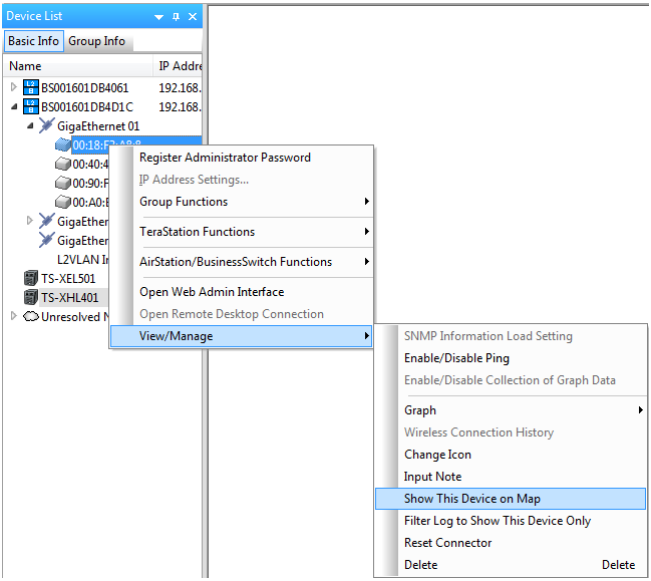
2 Set the IP address range to be scanned, and click *Scan start*.


Specify IP Address Range and Scan
Scanning is performed for the specified IP address range (ARP, ping, SNMP, and unique packets) for detecting new devices. Although scanning is more reliable than "Scan for new devices", it takes longer.
IP address range that is detected
Automatic determination (Within all IP address segments of this computer)
Scan the range below
192 . 168 . 1 . 1
to
192 . 168 . 1 . 254
Scan start
Scan results
No.
MAC Address
IP Address
Name
Product Name
This is registered only at IP addresses where communication is possible and where the MAC address of the device was identified.
Close

Note:

When an IP address range is selected for scanning, device scanning is performed with higher precision than normal, and non-Buffalo devices can also be detected. However, certain devices may still remain undetected.

3 In the Device List window, right-click the device that you want to show on the map, and select *View/Manage - Show This Device on Map*.



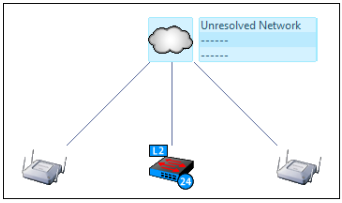
Notes:

- If the devices shown in the Device List window are expanded, new devices can sometimes be found under each interface.
- Once a new icon is displayed in the Map window, the icon can be changed if necessary.

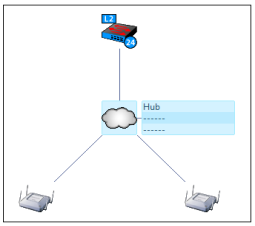
Cloud Icon

A map is drawn based on the information obtained from the access points and switches. The "SNMP information acquire setting" must be made for the access points and switches.

- If information serving as the basis of the map cannot be obtained, an icon is displayed as an "unspecifiable network" cloud.



- Hubs that do not support SNMP (such as a regular switching hub) are not detected, but locations where the installation of this type of hub is assumed are indicated by display of a "hub" cloud (even if multiple hubs are installed at different levels, the "hub" cloud is displayed for only one level.)



Operating Procedures

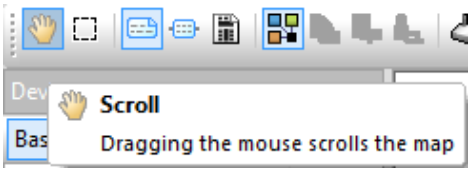
The various operating procedures in the Map window are described below.

To zoom in and out of a map

Move the *Zoom* slider at the top of the window to the right or left.
If the slider is not shown, go to *View - Toolbar and Docking Window*, and click *View* so that the slider is shown.

To scroll hidden sections

Click *Scroll* in the tool bar, and drag a section of the map where nothing appears.
Scrolling is also possible using the vertical and horizontal scroll bars.



To select multiple icons at once

Click the icons while holding down the *Ctrl* key.
You can also select multiple icons by clicking *Select Area* in the tool bar and dragging.

To move an icon

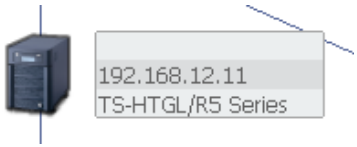
Drag the icon.

To change an icon

Right-click the icon, and click *View/Manage - Change Icon*.
Note:
Some icons cannot be changed.

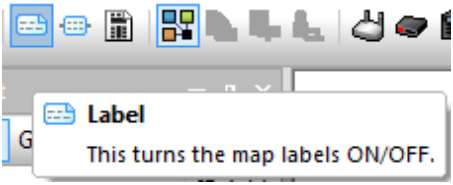
To view the device label (General information)

Hover the mouse pointer over an icon to see the label.



To always display the device label (General information)

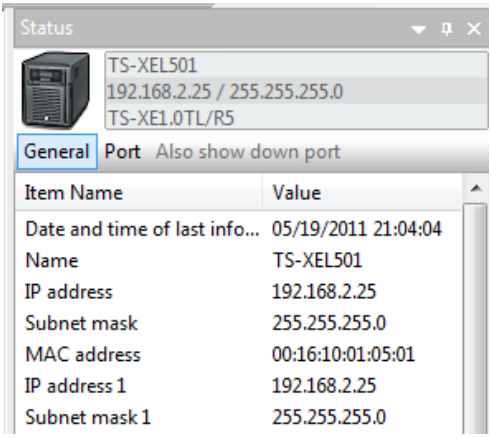
Clicking *Label* in the tool bar will always show the device label.



Note:
If the tool bar is not shown, go to *View-Toolbar and Docking Window*, and click *View* so that the tool bar is displayed.

To find out the device status

Clicking an icon displays the Status window.

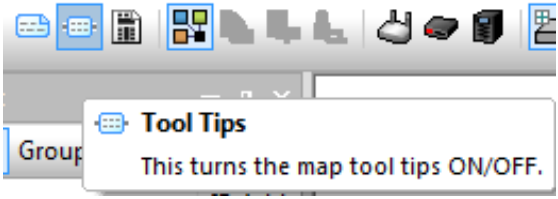


To show tool tips (Connector general information)

Click *Tool Tips* in the tool bar to show tool tips.

To always show tool tips (Connector general information)

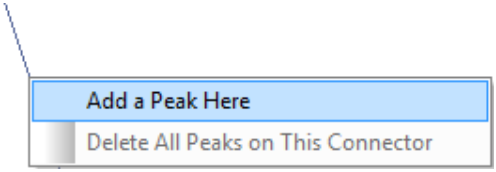
Click *Tool Tips* in the tool bar to always show tool tips.



Note:
If the tool bar is not shown, go to *View - Toolbar and Docking Window*, and click *View* so that the tool bar is displayed.

To bend a connector (line joining two devices) for better visibility

Right-click the connector to add a connection point, and drag the connection point.



Notes:

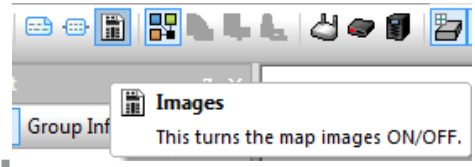
- A connection point can also be added by double-clicking the connector (line joining two devices).
- The *VLAN Map* at the top of the screen cannot be used in BN-ADT/NAS.

To find out details about a connector (line joining two devices) displayed on the map

The connectors (line joining two devices) displayed on the map include wired LANs (solid lines), wireless LANs (dotted lines), and wireless LANs connected by WDS (double lines).

To temporarily hide imported images

Clicking *Images* in the tool bar enables the showing and hiding of imported images. This is used when operations in the Map window are slow, the Map window is cluttered, or other difficulties occur.



To import an image

An image can be displayed in the background of the Map window. To import an image, click *File* - *Import* - *Import Image*.

Notes:

- Multiple images can be imported, but this could slow operation.
- Floor diagrams can be created using Visio or other programs for display as an image, and the device icons can be arranged for providing an easy-to-understand representation.
- The image file formats that can be imported are shown below.

File type	Extension
GIF	.gif
JPEG	.jpg, .jpeg, .jpe
BMP	.bmp
PNG	.png
TIFF	.tif, .tiff
SVG (SVGZ)	.svg, .svgz

Note:

SVG (SVGZ) images may not be rendered correctly for certain content.

To move and scale imported images

1. In the Main window of BN-ADT/NAS, go to *Edit* - *Select an Image*, and select the image that you want to move or scale.
2. Drag to move or scale the image.

To move an imported image to the front or back

When using multiple imported images, overlapped images can be moved to the front or back.

1. In the Main window of BN-ADT/NAS, go to *Edit* - *Select an Image*, and select the image that you want to move to the front or back.
2. In the Main window of BN-ADT/NAS, go to *View* - *Image Order*, and select the content that you want to move.

To delete an imported image

1 In the Main window of BN-ADT/NAS, go to *Edit* - *Select an Image*, and select the image that you want to delete.

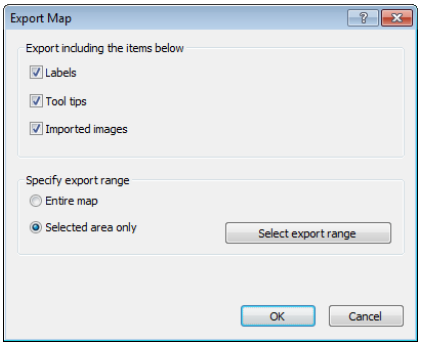
2 In the Main window of BN-ADT/NAS, select *Edit* - *Delete*.

To export a map

Content displayed as a map can be saved as image data.

1 In the Main window of BN-ADT/NAS, select *File* - *Export* - *Export Map*.

2 Select the content and range to be exported, and click *OK*.



Parameter	Description
Labels	General device information
Tool tips	General connector information
Imported images	Imported image(s)

Note:
If *Selected area only* is selected for the export range, only the icons, connectors, tool tips, and import images that are completely contained within the specified range are exported. For example, if only a section of an import image is within the range, that image will not be exported.

3 Specify the file name and the saving location, and click *OK*.

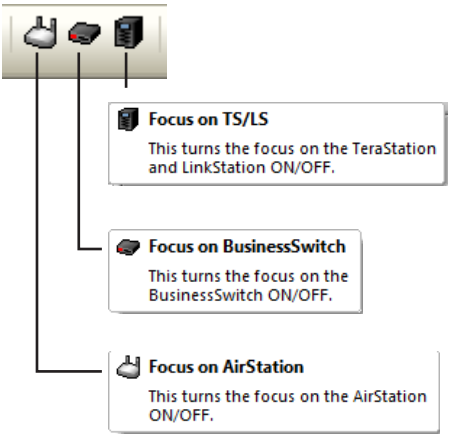
Notes:
- Details in the rendered content may differ slightly from the image appearing in the actual window.
- SVG (SVGZ) images may not be rendered correctly when opened with other software.

To highlight the icons for selected devices only

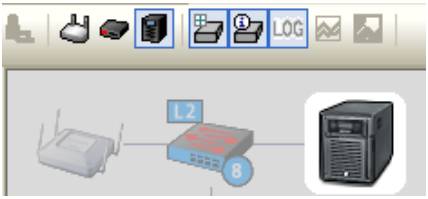
Clicking one of *Focus on AirStation*, *Focus on Business Switch*, or *Focus on TS/LS* in the view bar highlights the icons of the selected devices.
This is useful for focusing on certain target devices when the devices that are managed have increased in number.

Note:

If icons like those shown below are not displayed, update the firmware of BN-ADT/NAS and the devices to the latest versions.


Focus on TS/LS
This turns the focus on the TeraStation and LinkStation ON/OFF.
Focus on BusinessSwitch
This turns the focus on the BusinessSwitch ON/OFF.
Focus on AirStation
This turns the focus on the AirStation ON/OFF.

Example when *Focus on TS/LS* is selected

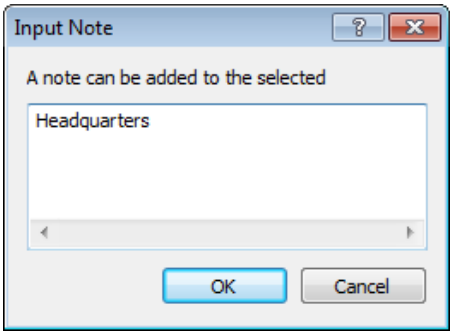


Input Note

Notes can be attached to device icons on the map.

1 In the Map window, right-click the device where you want to attach the note, and select *View/Manage - Input Note*.

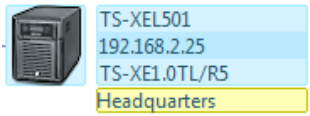
2 Enter the note, and click *OK*.



Note:
The note can contain up to three lines.

3 Notes are added to the labels for icons.

Hover the mouse pointer over an icon to see the label with the note.



Backup and Restore

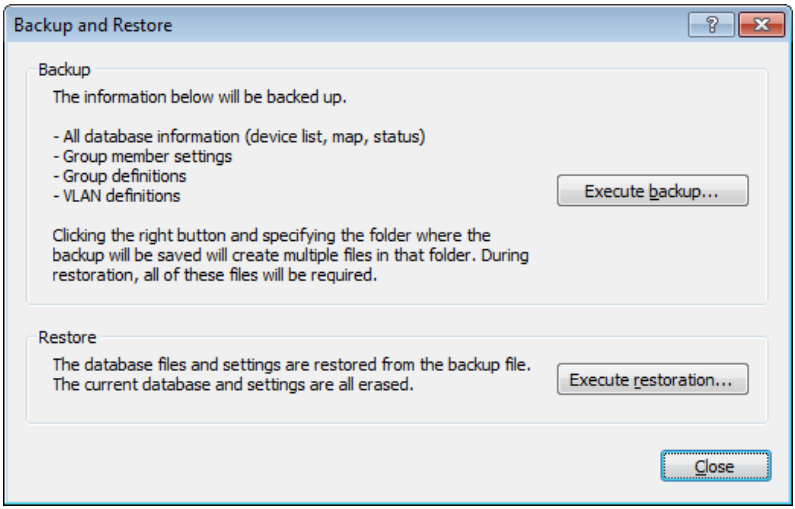
The content that is set in BN-ADT/NAS can be backed up to a file, and the settings can be restored from the backed-up file. The making of a backup is recommended before and after changing the settings of BN-ADT/NAS.

Backup

A backup is made by following the procedure below.

1 In the main window of BN-ADT/NAS, select *File - Backup and Restore*.

2 Click *Execute backup*.


Backup and Restore
Backup
The information below will be backed up.
- All database information (device list, map, status)
- Group member settings
- Group definitions
- VLAN definitions
Execute backup...
Clicking the right button and specifying the folder where the backup will be saved will create multiple files in that folder. During restoration, all of these files will be required.
Restore
The database files and settings are restored from the backup file. The current database and settings are all erased.
Execute restoration...
Close

3 Specify the backup location and click *OK*.

Note:

If a backup file was already made, an overwrite confirmation window is opened.

4 After creating the backup file at the selected location, click *Close*.

Notes:

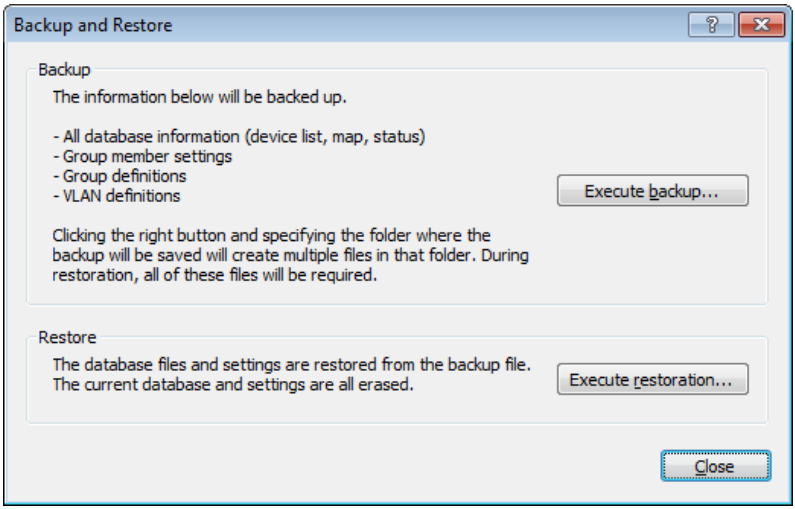
- Multiple files are generated at the backup location (page 74). The exact number of generated files varies depending on your usage conditions. All of these files are required during the restoration process.
- Saving of the backup files on a separate CD-R or other storage media is recommended.

Restore

Data is restored from a backup using the procedure below.

1 In the main window of BN-ADT/NAS, select *File - Backup and Restore*.

2 Click *Execute restoration*.


Backup and Restore
Backup
The information below will be backed up.
- All database information (device list, map, status)
- Group member settings
- Group definitions
- VLAN definitions
Execute backup...
Clicking the right button and specifying the folder where the backup will be saved will create multiple files in that folder. During restoration, all of these files will be required.
Restore
The database files and settings are restored from the backup file. The current database and settings are all erased.
Execute restoration...
Close

3 Specify the location where the backup files are located and click *OK*.

4 The message "The current settings will all be erased. Do you want to restore?" is displayed. Click *Yes*.

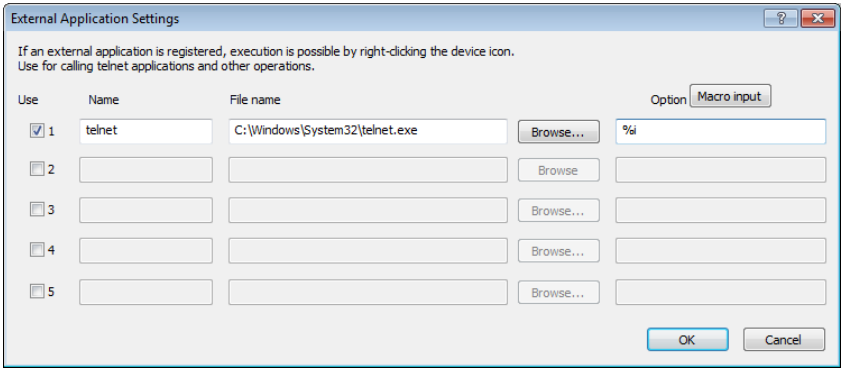
5 After restoration is complete, click *Close*.

External Application Settings

Frequently-used applications can be registered to easily call and open them using a simple operation. This function is convenient for registering the telnet client and other programs.

1 In the Main window of BN-ADT/NAS, select *Tools - Options - External Application Settings*.

2 Insert a check mark in one of 1 to 5, make the settings, and click *OK*.



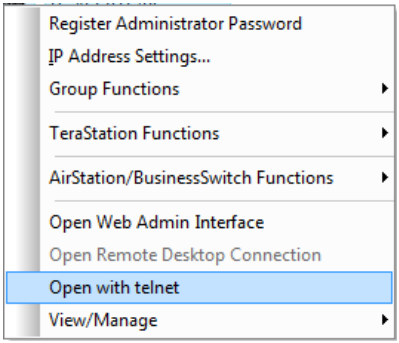
- The screen example shows 32-bit Windows. In the 64-bit version, the file is C:\WINDOWS\Sysnative\telnet.exe.
- Starting from Windows Vista, telnet is not installed by default. Telnet can be installed from the Windows Control Panel.

Parameter	Description
Name	This sets the name that is displayed in the menu.
File name	Click *Browse* and navigate to the application's executable file.
Option	This sets the communication pararameters for the application. Click *Macro input* to set the options in the table below.

Macro	Description
%i	IP address
%m	MAC address (no separators)
%mc	MAC address (colon separators)
%md	MAC address (hyphen separators)

Macro	Description
%ms	MAC address (space separators)
%M	MAC address (uppercase, no separators)
%Mc	MAC address (uppercase, colon separators)
%Md	MAC address (uppercase, hyphen separators)
%Ms	MAC address (uppercase, space separators)
%%	Enter "%"

3 To call the registered application, right-click the device from the Map window, and select *Open with XXXX* (where XXXX is the preset name).



Update Check Settings

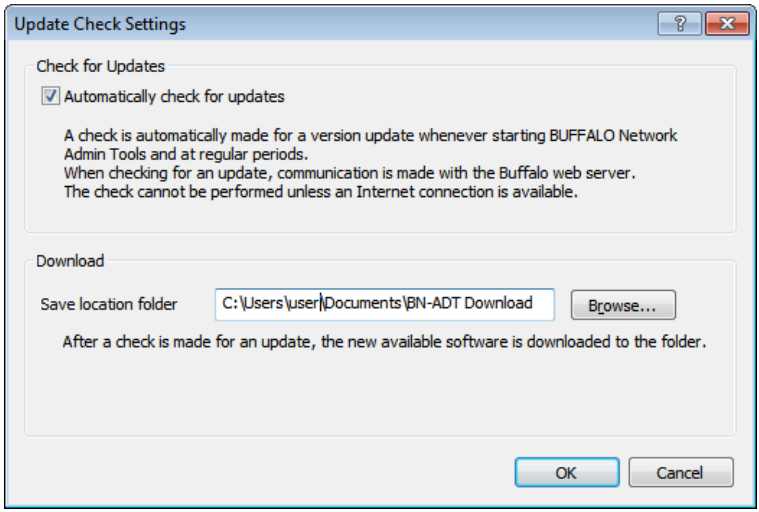
The procedure below can be used to set an automatic check for an update in the device firmware and BN-ADT/NAS at product startup and at preset intervals. Also, when an update is found, the file can be downloaded automatically.

Notes

- A check cannot be performed unless an Internet connection is available.
- Downloaded firmware must be updated manually.

1 In the Main window of BN-ADT/NAS, select *Tools - Options - Update Check Settings*.

2 If necessary, insert a check mark for *Automatically check for updates*, select the download target folder, and click *OK*.


Update Check Settings
Check for Updates
Automatically check for updates
A check is automatically made for a version update whenever starting BUFFALO Network Admin Tools and at regular periods.
When checking for an update, communication is made with the Buffalo web server.
The check cannot be performed unless an Internet connection is available.
Download
Save location folder
C:\Users\user\Documents\BN-ADT Download
Browse...
After a check is made for an update, the new available software is downloaded to the folder.
OK
Cancel

Notes

- If *Automatically check for updates* is not checked, use the procedure in "Check for Updates" (page 64) to check for an update manually.
- Once the downloaded file is no longer needed, delete it manually.

Check for Updates

The procedure below can be used to check if there is an update to the device firmware and BN-ADT/NAS. When an update is found, the file can be downloaded.

Notes:

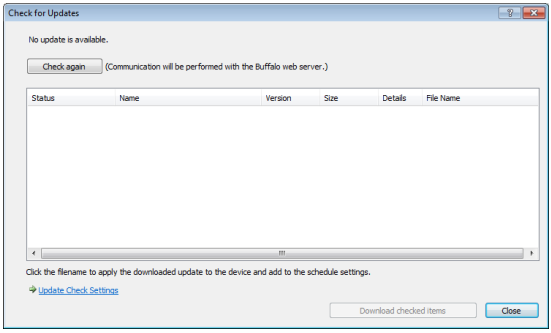
- A check cannot be performed unless an Internet connection is available.
- Downloaded firmware must be updated manually.
- For details on making the proxy settings, see the Help.
- This function does not support proxy servers that require user authentication or settings based on automatic configuration scripts (pac files).
- After the firmware is updated, perform the update check again to update the displayed information.

1 In the Main window of BN-ADT/NAS, select *Tools - Check for Updates*.

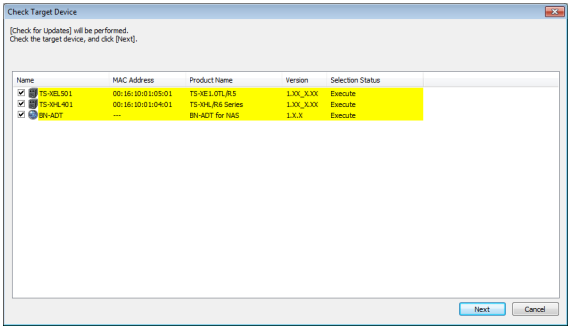
2 Click *Check again*.

Note:

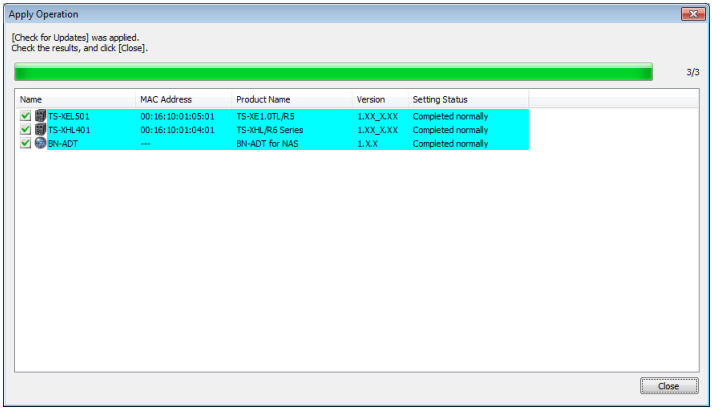
If the check for the update was completed in "Update Check Settings" (page 63), proceed to step 5.



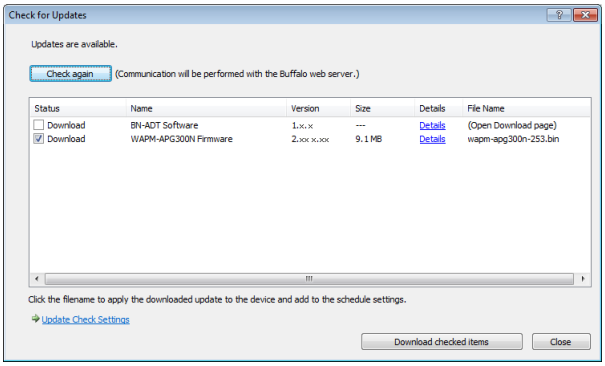
3 Insert a check mark for the device that you want to check for an update, and click *Next*.



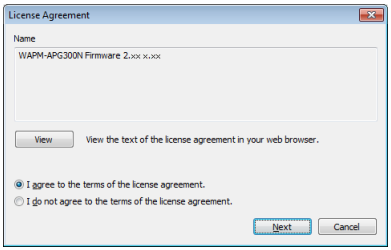
4 When the update check is complete, click *Close*.



5 The devices where an update is available are displayed. Insert a check mark for the devices whose update you want to download, and click *Download checked items* to download the file.

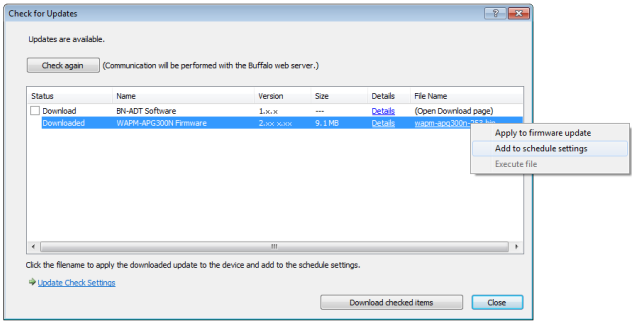


Note:
You may be required to agree to a license agreement before downloading some file updates.


License Agreement
Name
WAPM-APG300N Firmware 2.xx x.xx
View
View the text of the license agreement in your web browser.
I agree to the terms of the license agreement.
I do not agree to the terms of the license agreement.
Next
Cancel

6 Click the downloaded "File Name", and select the process.
Then, follow the on-screen instructions.

Note:
In the WS-QL series, WS-VL series, and TS-HTGL series, "Apply to firmware update" and "Add to schedule settings" are not available.



Parameter	Description
Apply to firmware update	Use the procedure in "Update Firmware" (page 30) to apply the update.
Add to schedule settings	Use the procedure in "Schedule Settings" (page 67) to apply the update at the specified date and time.
Execute file	Select this when the downloaded file is an executable file.

Schedule Settings

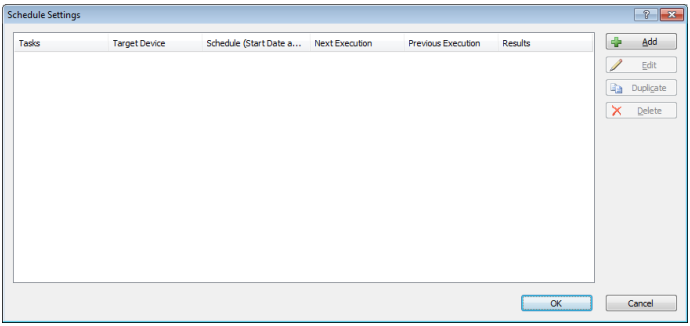
The procedure below can be used to execute specified tasks at a preset date and time.

Notes:

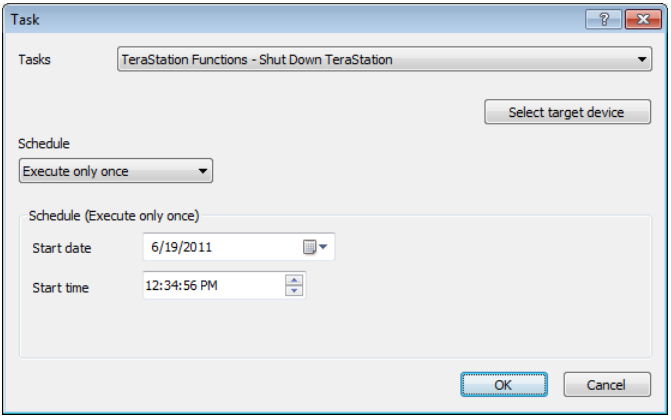
- This cannot be executed unless the user is logged onto Windows. If you will be leaving your seat, use the Windows lock function (Windows key+L).
- Once you log onto Windows, the task will be automatically executed at the specified date and time without starting BN-ADT/NAS.

1 In the Main window of BN-ADT/NAS, select *Tools* - *Schedule Settings*.

2 Click *Add*.



3 Set the various items, and click *OK*.

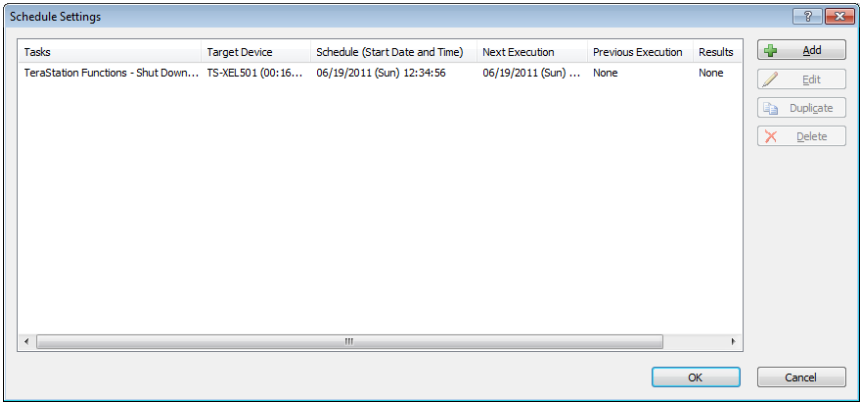


Parameter	Description
Tasks*	Select the functions that you want to execute. • TeraStation Functions - Restart TeraStation • TeraStation Functions - Restore Setting Value • TeraStation Functions - Save Setting Value • TeraStation Functions - Shut Down TeraStation • TeraStation Functions - Start TeraStation • TeraStation Functions - Update Firmware
Select target device	Select the target device where the task will be executed.
Schedule	Select the schedule for executing the task. • Execute only once • Daily • Weekly • Monthly
Start date	Set the date when the task will start.
Start time	Set the time when the task will start.

* Some functions are not supported in certain TeraStation series. (page 20)

Note:
A confirmation window may be displayed for some selected functions.

4 Click *OK*.



Note:
A window may be displayed asking you to enter your Windows user name and password (Administrator privileges).

Open Settings

BN-ADT/NAS can be used to open Settings for a selected device.

Note:

If using the WS-QL series or WS-VL series, make the setting by performing the procedure in "Open Remote Desktop Connection".

1 In the Map window, right-click the device, and select *Open Settings*.

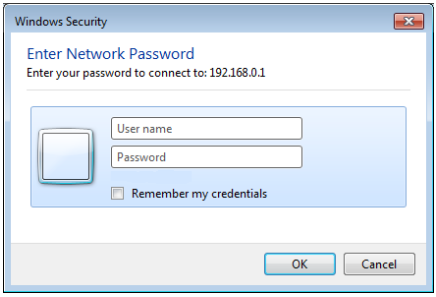
2 When the window for entering the user and password is displayed, enter this information, and click *OK* to open Settings.

Open Remote Desktop Connection

BN-ADT/NAS can be used to open the Remote Desktop in WS-QL series and WS-VL series where Windows Storage Server is installed.

1 In the Map window, right-click the device, and select *Open Remote Desktop Connection*.

2 When the window for entering the user and password is displayed, enter this information, and click *OK* to open the Remote Desktop.



5 Function Details

Buttons

Besides performing operations from the menus, you can also perform the same operations by clicking the respective button on the screen.

Buttons in Standard Bar

Button Icon	Description
	Scan for New Devices
	Refresh the Status
	Specify IP Address Range and Scan
	Disable Autoscan
	Periodically Autoscan for Finding New Devices
	Periodically Autoscan for Refreshing the Status
	IP Address Settings
	Add/Edit VLAN Definitions
	Check for Updates

Buttons in View Bar

Button Icon	Description
	Scroll
	Select Area
	Label
	Tool Tips
	Images
	Icon
	Focus on AirStation
	Focus on BusinessSwitch
	Focus on TS/LS
	Device List
	Status
LOG	Log

Buttons in Log Window

Button Icon	Description
Latest	Latest
< 05/19/2011 (Thu) 1 >	Selected Date
	Error
	Warning
	Information
Reset Device Filter	Reset Device Filter

Notification Balloons

BN-ADT/NAS displays notification balloons in the Map window in coordination with the log function to draw attention to important information.

Note:

To immediately remove the notification balloon, right-click the icon, and click *Close Notifications*.

List of Notification Balloons

Displayed Information	Description
New device	A new device was detected.
Connection changed	A device connection was changed.
Communication error	Communication failed. Check the device status and connections.
Port disconnected	A port was disconnected. Check the device status and connections.
IP address duplicated	An IP address is duplicated.
IP address duplicated?	Different devices responded at this IP address. Check if the IP address is duplicated or was changed.
Update available	An update check found that a new firmware version is available.

File Types

The files that are used in BN-ADT/NAS are shown below. If necessary, saving of these files to a CD-R or other storage medium is recommended.

File Type	Initial File Name	Default Save Location
Database file of the BN-ADT/NAS	BNADT.dbf (*1) Policy.dbf persistence.db maps folder and its subfolders (*2)	My Documents
Log	log date.txt (*3)	C:\Program Files\BUFFALO\BNADT\log
TeraStation Functions - Save Setting Values	TeraStation name_ date_time.nas_config	My Documents

*1 Under certain usage conditions, a file named "BNADTxxx.dbf (where xxx is a number from 001 to 999) is generated.

*2 The imported image data is saved.

*3 When the log exceeds its size limit, it is automatically divided. The name of the divided file is assigned a number in sequential order and the name "log date_ xxx.txt" (where xxx is a number from 002 to 999).

Restrictions

The following restrictions apply to BN-ADT/NAS.

Differences between setting items in BN-ADT/NAS and devices

Some setting items in the menu of BN-ADT/NAS include functions not available in devices that will be managed. When the settings items are different, the setting for that item is disabled.

Uninstallation Procedure

To uninstall BN-ADT/NAS, from the Control Panel, remove "BUFFALO Network Admin Tools for NAS".

Notes:

- Backing up the settings of BN-ADT/NAS is recommended before uninstalling.
- When uninstalling, if there is any user data that you want to remove, insert a check mark in the window shown for your usage environment.

TeraStation Error List

If the settings are made in "Show (Set) Error/Information" (page 29), the logs below are recorded whenever an error occurs in the TeraStation.

Code	Value	LCD Message	Warning (Log)
E00	0	SYSTEM Error E00 MPU No Response	The system does not respond.
E01	1	DRAM LINES E01 DATA Failure	E01: Print circuit board is out of order.
E02	2	DRAM LINES E02 ADDRESS Failure	E02: Print circuit board is out of order.
E03	3	RTC Chip E03 No RTC Clock	E03: Print circuit board is out of order.
E04	4	SYSTEM Error E04 Can't Load Krnl!	E04: Firmware has been damaged.

E05	5	WDT E05 System Stopped	E05: System is hung up.
E06	6	TFTP MODE E06 Lost boot image	E06: Firmware is not working.
E07	7	HD ALL E07 All HD Not Found	E07: HDD was not found.
E10	10	UPS E10 Dependent Mode	E10: UPS supplies power due to shut down.
E11	11	SYSTEM Error E11 Fan Failure	E11: Fan r.p.m. is unusual.
E12	12	SYSTEM Error E12 Cooling Failure	E12: System temperature exceeds safety level.
E13	13	RAID Error E13 ARRAYx Error	E13: Error has occurred at RAID array X.
E14	14	RAID Arrayx E14 Can't Mount	E14: RAID array X can not be mounted.
E15	15	HDx Error E15 Many Bad Sectors	E15: The bad sectors of disk X reaches emergency level.
E16	16	HDx Error E16 HDx Not Found	E16: Disk X was not found.
E17	17	Chip Error E17 RTC Failure	E17: Print circuit board is out of order.
E18	18	Chip Error E18 SATA1 Failure	E18: Print circuit board is out of order.
E19	19	Chip Error E19 SATA2 Failure	E19: Print circuit board is out of order.
E20	20	Chip Error E20 USB Failure	E20: Print circuit board is out of order.
E21	21	Chip Error E21 Ethernet Failure	E21: Print circuit board is out of order.
E22	22	HDx Error E22 HDx Can't Mount	E22: Fails disk X mount.
E23	23	HDx Error E23 HDx Is Faulty	E23: Disk X is removed from RAID array due to errors.

Code	Value	LCD Message	Warning (Log)
E25	25	iSCSI Error E25 can't share hdd	E25: Recurring error.
E26	26	Replication E26 Replication Failure	E26: Replication error has occured.
E27	27	FailOver E27 LostBackupTarget	E27: Unable to find the backup TeraStation. In the main TeraStation's settings, navigate to *System-Failover* to reconfigure the backup TeraStation for failover.
E28	28	(Not used)	
E29	29	(Not used)	
E30	30	HDx Broken E30 Replace the DISK	E30: An error occurred, so hard drive %d was removed from the RAID array. Replace hard drive X.
E31	31	-	E31: Failure has occurred on the power supply.
E32	32	-	E32: Failure has occurred on PSU.
-	-	-	Exx: Undefined error has occurred.

TeraStation Information List

If the settings are made in "Show (Set) Error/Information" (page page 29), the information below is displayed.

Code	Value	LCD Message	Warning (Log)
I01	1	SYSTEM I01 SELF CHECKING	I01: Checking system area.
I10	10	SYSTEM I10 TOO HOT!	I10: System temperature might exceed safety level.
I11	11	HDx Warning I11 Bad Sectors	I11: The bad sectors of disk %d reaches emergency level.
I12	12	OperationModeI12 DEGRADE MODE	I12: The RAID array works under degrade mode.
I13	13	RAID I13 ARRAYxFormatting	I13: Formatting %d RAID array.
I14	14	RAID I14 ARRAYx Checking	I14: Checking %d RAID array.
I15	15	RAID I15 ARRAYx Scanning	I15: Investigating error status of %d RAID array.
I16	16	RAID I16 ARRAYx Creating	I16: Creating %d RAID array.
I17	17	RAID I17 ARRAYx Resyncing	I17: Re-syncing %d RAID array.
I18	18	RAID I18A RRAYxRebuilding	I18: Re-structuring %d RAID array.
I19	19	RAID I19 ARRAYx 0 Filling	I19: Erasing %d RAID array completed.
I20	20	DISK I20 DISKx Formatting	I20: Formatting disk %d...
I21	21	DISK I21 DISKx Checking	I21: Checking disk %d...
I22	22	DISK I22 DISKx 0 Filling	I22: Data of disk %d is being deleted...
I23	23	SYSTEM I23 Initializing	I23: System is being initialized...

Code	Value	LCD Message	Warning (Log)
I24	24	Network I24 Setting Config	I24: Configuring IP address and other network settings.
I25	25	SYSTEM I25 F/W UPDATING	I25: Updating firmware...
I26	26	Web Setting I26 Initializing	I26: Initializing Web Admin screen.
I27	27	USB Diskx I27 Checking	I27: Checking USB HDD...
I28	28	USB Diskx I28 Formatting	I28: Formatting USB HDD...
I29	29	SYSTEM I29 Setting Quota	I29: Setting quota.
I30	30	iSCSI I30 Connected	I30: Recurring error.
I31	31	Press FuncSW I31 New Diskx ready	I31: Detect No.%d HDD. Click function switch.
I32	32	Set From Web I32 New Diskx ready	I32: Detect No.%d HDD. Please rebuild RAID array again or format the HDD..
I33	33	Replication I33 ReplicationFailure	I33: Replication error has occured.
I34	34	Virus alert I34 Virus detected	I34: Security risk infection(s) detected.
I35	35	Cartridgex I35 Location error	I35: A hard drive set as a media cartridge has been installed in the drive 1 slot. Connect to the slot that was set as a media cartridge.
I36	36	Cartridgex I36 Decryption error	I36: Media cartridge cannot be decrypted. The media cartridge may have been encrypted by a TeraStation other than BN-ADT/NAS.
I37	37	Recovery I37 SystemRecovering	I37: System recovery in progress.
I38	38	Recovery I38 RecoveryFinished	I38: System recovery is complete.

Code	Value	LCD Message	Warning (Log)
I39	39	Recovery I39 Change Boot	I39: System recovery from USB memory is complete. Change the Boot Mode switch on the rear to *HDD*.
I40	40	Recovery I40 DataWillDeleted	I40: Beginning recovery. All data on drive 1 will be deleted.
I41	41	Recovery I41 PushFuncToStart	I41: Pressing the function button on the front panel will start the recovery process.
I42	42	Recovery I42 Preparing	I42: Preparing to start the recovery process.
I43	43	Recovery I43 Unsupported HW	I43: The TeraStation was started from the recovery USB memory, but the system cannot be recovered from this USB memory.
I44	44	Recovery I44 Disk1 not found	I44: Recovery from USB memory was initiated, but Disk 1 was not detected. Make sure that Disk 1 is present and fully inserted in its slot.
I45	45	Recovery I45 Recovery Failed	I45: Recovery failed.
I46	46	RAID ARRAYx I46 RMM+ Processing	I46: Data migration or conversion (RAID migration) is in progress. Do not turn off the TeraStation's power.
I47	47	SYSTEM I47 Don't Power Off	I47: Data migration or conversion (RAID migration) is in progress. Do not turn off the TeraStation's power.
I48	48	FailOver I48 PushFuncToStart	I48: This TeraStation is ready to become the failover backup for the main TeraStation. Hold down the Function button on the front of the target TeraStation until it stops beeping to accept failover backup status.
I49	49	FailOver I49 LostMainTarget	I49: The main TeraStation in the failover configuration cannot be found. Reconfigure failover in the TeraStation's settings at *System- Failover*.

Code	Value	LCD Message	Warning (Log)
I50	50	FailOver I50 Maintenance Mode	I50: Failover maintenance is in progress. Do not turn off the TeraStation power.
I51	51	FailOver I51 Initializing	I51: Initializing the failover configuration. Do not turn off the TeraStation power.
I52	52	New Firmware I52 Available	I52: A new firmware version has been released. Update the firmware.
I55	55	Recovery I55 RecoveryAuthFail	I55: Failed authorization during recovery settings.
I56	56	Surveillance I56 Lack of License	I56: The number of license for Surveillance Server is not enough.
I57	57	Surveillance I57 No free space	I57: There is not enough free space to record Surveillance video.
I58	58	Surveillance I58 Recording Failure	I58: Failed to record Surveillance video.
-	-	-	Ixx: Undefined information has been generated.